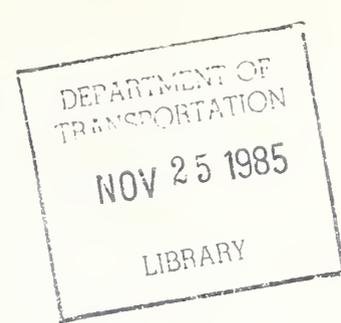


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Department
of Transportation
National Highway
Traffic Safety
Administration



DOT HS 806 780

May 1985

Technical Report

Guidelines for Observing Child Safety Seat Use



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253
1985

1. Report No. DOT HS 806 780		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Guidelines for Observing Child Safety Seat Use				5. Report Date May 1985	
				6. Performing Organization Code	
7. Author(s) Peter N. Ziegler				8. Performing Organization Report No.	
9. Performing Organization Name and Address U.S. Department of Transportation National Hwy. Traffic Safety Administration Research and Development Washington, DC 20590				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No.	
				13. Type of Report and Period Covered	
12. Sponsoring Agency Name and Address				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract This manual provides guidelines for collecting observational data needed to assess the use of child safety seats. Specific directions are included for (a) observing child safety seat use, (b) determining the extent of correct and incorrect installation of child seats, and (c) instructing observers on how to use sample data collection forms. The Appendix provides detailed information on various types of child safety seats. It can be used to identify seat manufacturers and models to assess whether the seats are correctly installed.					
17. Key Words Child Safety Seats, Child Restraint Systems, Child Safety Seat Use, Child Safety Seat Observation Methods			18. Distribution Statement Document is available to the U.S. Public through the National Technical Information Service, Springfield, VA 22161		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages	22. Price

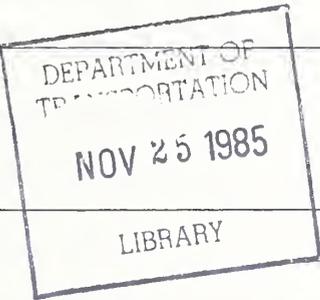




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I. Introduction

This manual provides guidelines for collecting observational data needed to assess the use of child safety seats. Specific directions are included for (a) observing child safety seat use, (b) determining the extent of correct and incorrect installation of child seats, and (c) instructing observers on how to use sample data collection forms. The Appendix provides detailed information on various types of child safety seats. It can be used to identify seat manufacturers and models to assess whether the seats are correctly installed.

II. Data Sampling Sites

One issue must be given attention in the design of a survey using the techniques described here. The observations to be made require time and thus cannot be made with moving vehicles. The use survey will require sampling from stopped cars and the correct installation survey will require sampling from parked cars. Randomly sampling from all parked/stopped cars would involve considerable "search" time and expense to locate cars with child safety seats since they are found only in a small percentage of vehicles. The alternative is to observe at locations where there is a large enough number of cars to find those with child safety seats without excessive search time.

Earlier studies have collected data at (a) geographically stratified traffic sites where vehicles must stop and (b) at shopping malls. A comparison of the two showed little difference in restraint use results for infants and toddlers, but about 2 1/2 times as many observations were made per unit time at the malls. Obviously, careful consideration must be given to the definition of the population from which the sample of observations will be drawn.

If a use survey takes the approach of sampling from street traffic, traditional statistical techniques should be used to select the data collection sites. If a survey uses the approach of observing at locations expected to have a large volume of child passengers, the following comments should be helpful:

Shopping centers are generally recommended as good locations to collect a high volume of child safety seat use data. Typically, one data collector will observe 50-70 toddlers and 10-15 infants at a large mall over a 6 hour period on a Saturday. Other sites such as day care centers, children's medical facilities, and similar places could be used; however, they will provide smaller numbers of children and maybe less representative of the population under study.

To begin the process, a group of shopping centers that reflect the socio-economic composition of the geographic area to be studied should be prepared. If a Statewide study is to be undertaken, a number of cities and communities around the State must be included. Once these cities and communities have been selected and a number of major shopping malls have been identified in each location, each mall should be visited during busy periods in order to (a) estimate whether there is enough traffic to warrant its use, (b) select the exits with the greatest traffic flow, (c) estimate the socio-economic status of the center's customers and, (d) select good vantage points for observational purposes. Based on this review and any other criteria that have been established, several shopping centers in each geographic area of study that best fit survey requirements should be selected. To assure that an adequate sample is obtained, observations should be made over a 2-3 day period at each shopping center during their busiest times.

III. General Considerations

Experience has shown that the following actions should be taken prior to the commencement of a survey:

- o The procedures should be "pilot-tested" before observers are trained and sent out to collect data and special precautions should be taken to assure the safety of survey personnel.
- o Because bulky clothing worn by children during cold weather affects use of harnesses, collection of data during the same seasons of year should be considered.
- o Where appropriate, police agencies and security personnel should be informed of the study and the sites and times when observers will be working.
- o Safety vests and name tags should be used to give the observers an "official" look and the use of a "to whom it may concern" letter describing the study and signed by a high level city/state official can be very helpful if the observer's credentials are questioned.
- o A "TRAFFIC SURVEY" sign should be placed on the back of the clipboard used to collect data to reduce the incidence of people asking questions and reduce concerns by occupants about why an observer is looking into their car.
- o Detailed arrangements for the tabulation, storage and analysis of the data should be made.

IV. DATA COLLECTION PROCEDURES

The procedures presented below describe guidelines for (1) observing child safety seat use and (2) assessing the extent of correct or incorrect installation of child seats in cars.

A. Child Safety Seat Use

Data on the use of child safety seats can be obtained by looking into passenger cars that are stopped for traffic signals. Data collectors look into cars and collect data on child passengers estimated to be 4 years old or younger. In some surveys the ages of the children have been obtained by asking the drivers. The data collector should record whether the child is restrained by a safety belt, child safety seat or not restrained. If a child is observed in a child safety seat, information pertaining to correct use should be recorded on the data form accordingly for different type of seats:

1. Toddler/Convertible Seats:

Use or non-use of the harness and/or shield should be recorded as correct and incorrect use respectively. Data should not be collected on the use of tethers and whether the car belt is properly securing the child seat because this information can not be obtained accurately and reliably when looking into cars stopped for traffic signals.

2. Infant-Only Seats

For almost all of the infant-only seats it is relatively easy for observers to see if an infant is harnessed and if the car belt is securing the child safety seat. With these seats the car belt and harness should pass in front of the child. The seat also should be facing rearward. If any one of these conditions are not observed, an "incorrect" usage is recorded.

3. Booster Seats

The observer should record non-use of either the shoulder belt/harness and/or the car belt as an "incorrect" use. This information should be clearly visible to the observer.

B. Correct/Incorrect Child Safety Seat Installation

There are two basic methods for collecting child safety seat installation data. One method involves making observations of child safety seat installations in unoccupied cars that are parked. The other method involves making restraint use observations of cars entering parking areas and then requesting cooperation from drivers of vehicles that contain child safety seats so that correct/incorrect installation can be determined. This latter method allows for the "marriage" of usage and installation data.

Assessing the correct and incorrect installation of child safety seats requires that the data collectors become familiar with the more popular child seats and the proper way to install them. Contained in the Appendix are pictures of most child safety seats and descriptions of their proper installation and use. It can be used as a training aid and a reference for the observers while they are collecting data. Installation information that should be obtained include: (a) whether the car belt is securing the child safety seat and properly routed through the seat; and (b) if the seat is tethered (where required).

1. Parked Car Method

In this method the data collector walks through parking areas looking for child safety seats in cars. Once a car has been spotted, the data collector looks through the window to obtain installation information. Installation data can be obtained for only toddler/convertible type seats in this manner. Installation data for other types of seats can be obtained only when a child is in the seat. This is because these seats require the car belt to come across the front of the seat and needs to be disconnected when the child is taken out of the seat.

2. Occupied Car Method

Child seat and harness use should be recorded by the "first" observer as described above as cars enter parking areas (e.g., in shopping centers or fast food restaurants). The observer should ask drivers for cooperation and could offer an incentive such as a free food coupon from a local fast food restaurant. If cooperation is obtained, the drivers would be instructed to pull into a designated parking area for determination of proper child seat installation by a "second" observer. The first observer should note the license plate number of the vehicle so that the data collected on harness use could be matched with the data which is obtained on correct installation by the second observer.

At fast food restaurants, one observer may be sufficient if cars can be followed to where they are parked before the occupants get out of their car. In addition, data also could be collected while cars are waiting in the "drive-thru" lane. Observers will need to be skilled at identifying child seats because there will be little time for searching through the identification guide to identify seats by make and model.

Cooperation from drivers in such studies has generally been good, but gaining cooperation from shopping center management or fast food restaurants may be more difficult.

The specific instructions for observers presented later in this manual for the "Parked Car" method can be easily modified for use with the "Occupied Car" method. The data form provided is suitable for both of these methods. However, installation information can be obtained for all types of child safety seats using the occupied car method.

V. GENERAL TRAINING REQUIREMENTS

A recommended training procedure is to start with a "classroom" setting to explain the survey followed by "on-site" supervised data collection. During the classroom period, the background and purpose of the survey should be explained. The responsibilities of the observers with regard to completeness and accuracy of the data should be stressed. The data collection forms should be discussed in detail, including exactly how the data will be collected as well as how it will be verified. Providing the observers with an Instruction Manual is recommended.

It is important to provide demonstrations during the classroom period. Utilizing popular child seats and a large doll should be very helpful in explaining proper and improper use and installation of these devices.

During the on-site training periods the observers performance should be monitored by a supervisor. Once the observers become proficient, they can practice on their own. It will take a couple of hours of practice for an observer to become familiar with the data collection procedures. Each observer should be monitored frequently during the practice sessions.

After an hour of practice, both the observer and instructor should observe the same cars and record data independently. Data for each observation should then be compared and any differences discussed. It is reasonable for a supervisor to train two to three observers at the same time. Once the initial training is completed the observers should spend several hours collecting data on their own. The data collected should be checked for neatness, clarity, and, to the extent possible, for accuracy.

After the training program, the observer should be able to collect accurate data. However, on-site spot checks are recommended as a quality control measure. In addition, the completed data sheets should be reviewed carefully during the entire data collection period to check for any large deviations among observers. Obvious discrepancies in the data should be investigated promptly and additional training provided as necessary. "Refresher" training may be helpful if the same data collectors are used for subsequent surveys.

VI. INSTRUCTIONS FOR DATA COLLECTORS

A. Child Safety Seat Use

1. Site Selection

Upon arrival at the assigned data collection area, its layout should be inspected to identify the best locations for data collection. This is necessary only if the specific site has not already been identified. Important considerations are:

- o Safety - is there a safe place to stand close to a traffic light that will permit adequate observation of the interior of vehicles?
- o Traffic Flow - select the locations that provide the greatest flow of traffic. Sites where cars become backed up are ideal.

2. Eligible Vehicles

Only privately owned passenger cars and station wagons are eligible for this survey. Vehicles used for commercial purposes, such as taxi cabs and cars with out-of-state license plates should not be included.

3. Observation Techniques

Observers should stand on the curbside at the selected site. At locations where there is more than one lane of traffic traveling in the same direction, observations should be made of only the cars in the closest lane. Do not go out into the street to observe cars in any other lanes.

In order to record the information needed, it is frequently necessary to peer into the window of the car to determine restraint usage. When this is done, make sure that the back of the clipboard ("Traffic Survey") is visible to the occupants. Look for cars with child passengers. Do not collect data on cars unless they have child passengers.

4. Data Collection Form

The following page presents the form for collecting data on child safety seat usage.

CHILD SAFETY SEAT USAGE

1. Observer: _____ 2. Date: _____
 3. Location of Data Site: _____
 4. Start Time: _____ AM-PM 5. End Time: _____ AM-PM

<u>No.</u>	<u>Restraint Used</u> 0-None 1-Belted 2-In Child Seat	<u>Child Seat Use</u> 1-Correct 2-Incorrect * 3-Unsure	<u>No.</u>	<u>Restraint Used</u> 0-None 1-Belted 2-In Child Seat	<u>Child Seat Use</u> 1-Correct 2-Incorrect * 3-Unsure
1.			18.		
2.			19.		
3.			21.		
4.			22.		
5.			23.		
6.			24.		
7.			25.		
8.			26.		
9.			27.		
10.			28.		
11.			29.		
12.			30.		
13.			31.		
14.			32.		
15.			33.		
16.			34.		
17.			35.		

*For all seats: Non-use of a harness/shield
 Infant-Only seats: Non-use of the car belt and/or infant facing toward front of car

5. Instructions for Filling in Child Safety Seat Use Data Form

a. General Information

The top portion of each form provides important information and should be completed prior to each data collection period. This information should be entered on each sheet used to record data.

- o Observer: Write in your full name.
- o Date: Write in the month, date, and year.
- o Location of Data Site: Identify the exact location including the name of the streets where data is being collected.
- o Start & End Time: Specify the hour and minutes, and circle AM or PM for the start and end of the data collection on each survey form used.

b. Recording Data

Complete one line on the form for each child passenger observed. Do not record data for children whom you estimate to be more than 5 years old. Do not include passengers in the rear compartment of station wagons or hatchbacks where there are no seats.

o Restraint Use

For any child in the car who appears to be less than 5 years old, record the type of restraint used as described below.

None (Code 0)

Use Code "0" when there is no means used to restrain the child passenger. Children being held on the lap of another passenger or in an "unsafe" seat should be coded as "0". There are several types of "unsafe" seats that may be mistaken for safety seats. These seats are intended for use in the home and do not provide any protection in the event of an accident. The seats are usually made of thin plastic and equipped with straps as shown in Figure 1. They have no provisions for attachment to the car using safety belts and were not designed to withstand the forces associated with an accident.

Belted (Code 1)

This code is used for an occupant wearing a safety belt where the lap belt is across the passenger's waist or both the lap belt and the shoulder harness are used.

In Child Seat (Code 2)

A large variety of child safety seats will be present in the cars observed. Different types of seats will be described later. If a child is in a safety seat a Code "2" should entered.



Figure 1. Child Seats Unsafe for Car Use

o Child Safety Seat Use (Types of Seats)

There are three types of child seats. They are described below so that "correct" and "Incorrect" usage can be determined when making observations of children in safety seats.

Toddler/Convertible Seats

These seats are secured by the car safety belt and for some seats a tether strap is also required. However, data as to whether they are secured by a car belt or tether should not be recorded since this information is too difficult to obtain due to visibility problems. The child is held into the safety seat by a harness that comes across both shoulders as shown in Figure 2. If this harness is across the child record this observation as a "correct" use (code 1). No harness use should be recorded as "incorrect" (code 2).

Some of these seats include an armrest and some have the harness and crotch straps connected to the armrest. Use of just the armrest is not safe and must be coded as "incorrect" because the child can be thrown out of the seat in the event of a crash.

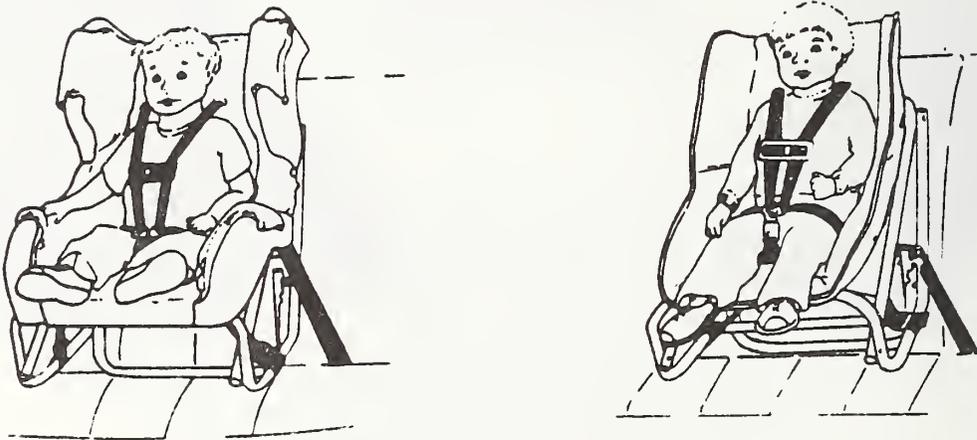


Figure 2. Child Seats Utilizing a Safety Harness

Some child safety seats utilize a partial shield or a harness pad as shown in Figure 3 and must be used with the harness across the child's shoulders. Another type of seat incorporates a full-shield as shown in Figure 4. Note that the seats shown in Figure 4 do not require a harness for the child and the "full" shield alone provides protection. Very few of these full-shield type seats are available and will seldom be observed. Record "correct" use only if the harness is observed being used for all seats except the full-shield type.



Figure 3. Child Safety Seats Using Partial Shields and Harness Pad

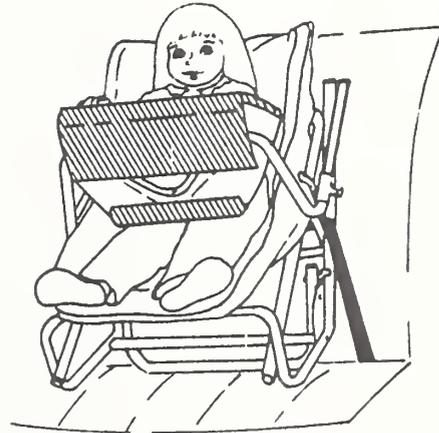


Figure 4. Child Safety Seats With Full Shield, No Harness Required

Many of these seats are "Convertible" and can be used for either an infant or a toddler. While in the infant "mode" (see Figure 5) the Convertible seat is placed in the reclined position and installed so that the child faces toward the rear of the car. For these seats, if the harness is in use record this as a "correct" use. No harness use is recorded as "incorrect."

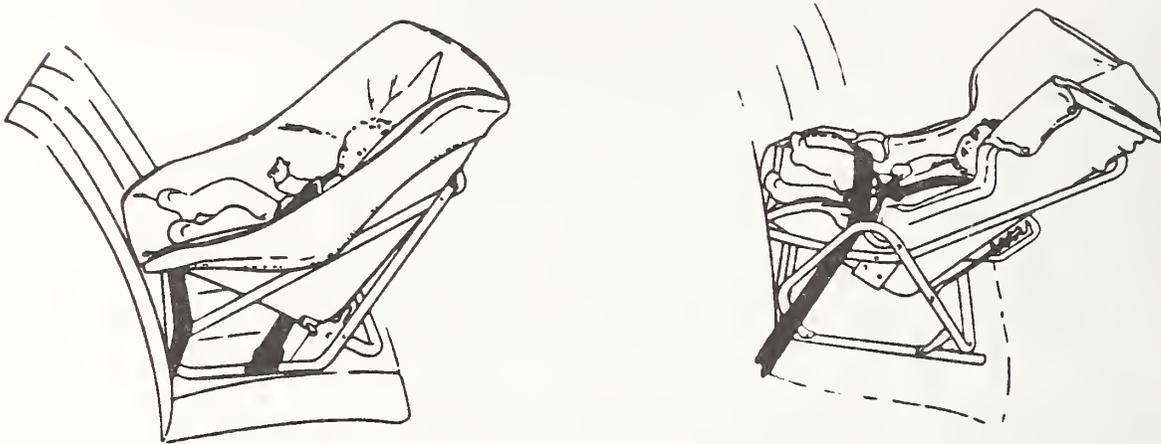


Figure 5. "Convertible" Infant and Toddler Seats Shown Used in the Infant Position

Infant-Only Seats

There are some seats that are designed especially for infants as shown in Figure 6. These seats are generally smaller than Toddler seats. The harness fits over the child's shoulders, and in most cases, the car belt crosses in front of the child securing the seat to the car. For a "correct" use of these seats, three conditions must be met: (1) use of the harness, (2) the car belt securing the seat and (3) the child is facing rearward. Note that the "First Ride" by Cosco Peterson does not route the car belt in front of the child safety seat. Refer to the identification guide to identify this particular seat. If the use of the car belt to secure this particular seat cannot be determined, mark it "unsure" (Code 3).

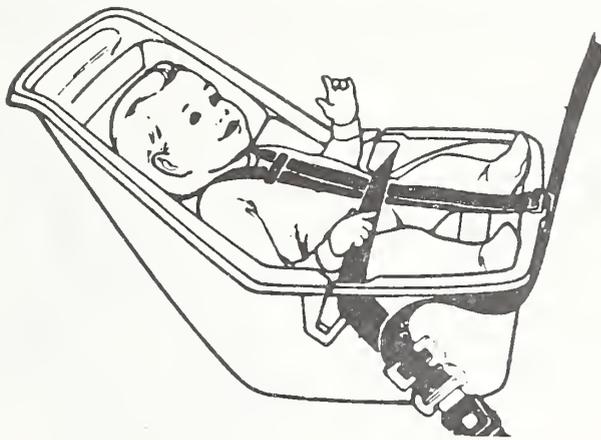
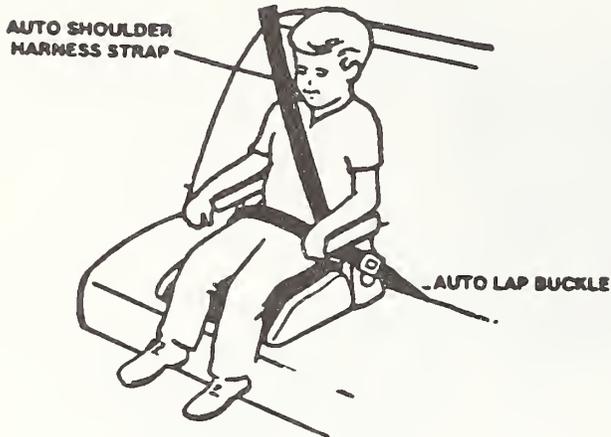


Figure 6 Infant-Only Seat

Booster Seats

Booster seats are small seats without a back that raise the child several inches off the seat of the car. Most of these seats are designed to be used with the car belt across the lap of the child and an upper body restraint. Both of these conditions must be met before a "correct" use is recorded. In the front outboard seat of all cars and the rear outboard seats of most imported cars, the shoulder strap of the car belt can be used as the upper body restraint. In those seating positions that do not offer a combination lap/shoulder belt, upper body restraint must be provided by a harness attached behind the seat to the structure of the car. Both means of restraint are shown below in Figure 7. These seats should be used by children who are between 4 and 10 years old but younger children are sometimes also seen in these seats. There are several new models of Booster seats as shown in the Identification Guide that do not require the use of a belt or harness for upper body restraint. These seats use a full-shield instead which is secured by only the lap belt. Use of just the shield for these seats should be recorded as a "correct" use.

Used with Shoulder/Lap Belt



Used with Lap Belt and Harness



Figure 7. Typical Booster Seat

o Unsure (Code 3)

Occasionally, a car may drive away before a complete observation can be made. In this case don't guess. If correct or incorrect use cannot be determined as described above enter code "3".

B. Correct/Incorrect Child Safety Seat Installation

1. Site Selection

Data collection on seat installation can take place in large parking lots. Parked cars containing child safety seats will be located to permit the conduct of the observations described below.

2. Eligible vehicles

Look for child safety seats in passenger cars only. Light trucks and vans should not be included because it is too difficult to view seat installation in these vehicles.

3. Observation Techniques

Identification of the seat and whether it is installed correctly can be determined by peering through the windows of the vehicle. No attempt should be made to open the car doors. Try to be inconspicuous. Customers are more likely to become alarmed and report your activities to security personnel if you look "suspicious."

4. Data Collection Form

The following page presents the form for collecting data on correct and incorrect installation of child seats.

CORRECT/INCORRECT INSTALLATION OF CHILD SAFETY SEATS

Do not collect data for seats in which the car belt is disconnected when the child is removed from the seat, (e.g., Booster, Infant-only seats and Toddler models Bobby-Mac and Welsh Travel Tot).

1. Observer: _____ 2. Location: _____
 3. Date: _____ 4. Start Time ____ AM-PM 5. End Time: ____ AM-PM

No.	Car Belt	Tether	No.	Car Belt	Tether
	1-Correct 2-Not Attached 3-Incorrect	1-Correct 2-Not Attached 3-Not Required		1-Correct 2-Not Attached 3-Incorrect	1-Correct 2-Not Attached 3-Not Required
1.			20.		
2.			22.		
3.			23.		
4.			24.		
5.			25.		
6.			26.		
7.			27.		
8.			28.		
9.			29.		
10.			30.		
11.			31.		
12.			32.		
13.			33.		
14.			34.		
15.			35.		
16.			36.		
17.			37.		
18.			38.		
19.			39.		
20.			40.		

6. Instructions for Using Data Form for Correct/Incorrect Child Safety Seat Installation

a. General Information

The top portion of each form provides important information and should be completed prior to each data collection period. This information should be entered on each sheet used to collect data. Do not collect data on child seats where the car belt is disconnected when the child is removed from the seat (e.g. booster, infant-only seats and toddler models Bobby-Mac and Welsh Travel Tot).

b. Recording Data

Complete one line on the form for each child safety seat observed.

o Car Belt

Check to see if the seat is secured by the car belt and whether the car belt is properly routed through the back of the child safety seat. Refer to the "Identification Guide" to find the same seat being observed in order to determine how it is supposed to be installed. If the car belt is properly routed, enter a code "1" for "correct." If the belt is not attached use code "2" and if it is attached incorrectly use code "3".

o Tether

After the seat has been identified, the "Guide" should be used to determine whether a tether strap is required. If a tether is not required, code this as "3", "not required."

If the tether is required and appears to be properly attached, code this observation as a "1", "correct."

If the tether is not attached record this as a code "2".

Tethers used for child seats in the rear of the car should be attached to a hook or anchor bolt secured to the deck lid. Tethers used for child seats in the front of the car can be attached to a rear seat belt of the car. If, for some reason it is obvious that the tether is used improperly, code this as a "2", not attached.



CHILD SAFETY SEAT
IDENTIFICATION GUIDE

This guide was developed by Goodell-Grivas, Inc., under a research contract with the National Highway Traffic Safety Administration (NHTSA) for use as a field reference to identify child safety seats. The information in this guide is based on a compilation of manufacturers' instructions for child safety seats.

This guide is to be used to identify the make/model of child safety seat and to determine proper use and installation requirements. It is organized into four parts: (1) toddler and convertible seats; (2) infant-only seats; (3) booster seats; and (4) pre-1981 child seats. Within each section, the child seats are organized to illustrate the most common seats first, followed by less common models.



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I. TODDLER/CONVERTIBLE SEATS

Toddler/convertible seats are designed for use by children less than five years old. When used by toddlers (not infants) the seats are designed to face forward in an upright position. When used by infants, "convertible" seats are designed to face rearward and be set in the reclined position. Most toddler seats and all seats used in the convertible position are designed to secure the child into the seat with a harness system that comes across both shoulders. A few models for toddlers employ only a full-shield system that takes the place of the harness system. All child safety seats must be secured to the car by means of the car's safety belt.

Some models for toddler use have a tether strap which should be secured to prevent the child seat from tipping forward in a crash. Recent models of these child seats for toddler use are:

- o Strolee Wee Care - Model 599
- o Century Child Love Seat
- o Bobby Mac Super Car Seat

Child seats for toddler use that incorporate a full-shield system are:

- o Cosco/Peterson Safe-T-Shield
- o Kolcraft Products Quick Step
- o Ford Tot Guard

Many models of toddler/convertible seats are equipped with an arm rest and require that the child be secured with the harness system. An arm rest (usually a metal bar wrapped with padding material) should not be confused with a full-shield system which has a wider and larger surface area.

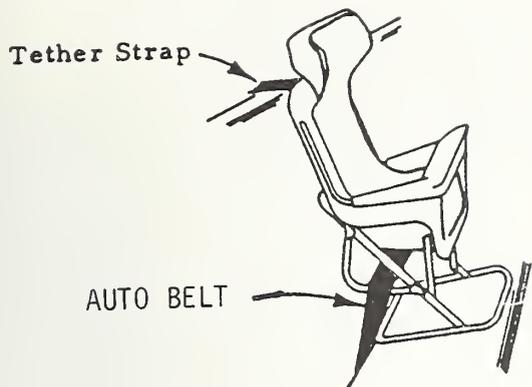
This Identification Guide provides information on a separate page for each toddler/convertible safety seat. Each page provides a title block, a drawing/picture of the child seat as it looks when (a) empty, (b) occupied by a toddler and (c) occupied by an infant for convertible seats. The title block contains the name of the seat, the manufacturer, whether the seat is convertible for infant use, tether requirements, whether full-shield type and in some cases, descriptive identification notes. When reviewing an illustration of a seat, a check should be made to determine if a tether is necessary and the proper routing of the car belt.

The approximate percent distribution of the most prevalent toddler seats observed in a recent study of child seat installation in 19 U.S. cities was as follows:

<u>Manufacturer</u>	<u>Percent</u>	<u>Prevalent Models</u>
o Strolee	36%	500 and 600 series
o Questor	23%	Kantwet One Step and Bobby-Mac
o Century	22%	100-400 series and the Child Love Seat
o Cosco	9%	Safe-T-Seat, Safe-T-Shield, Safe & Easy, Safe-T Mate, Commuter
o International	4%	Teddy Tot Astroseat
o Kolcraft	3%	Redi-Rider, Hi-Rider and Quick Step

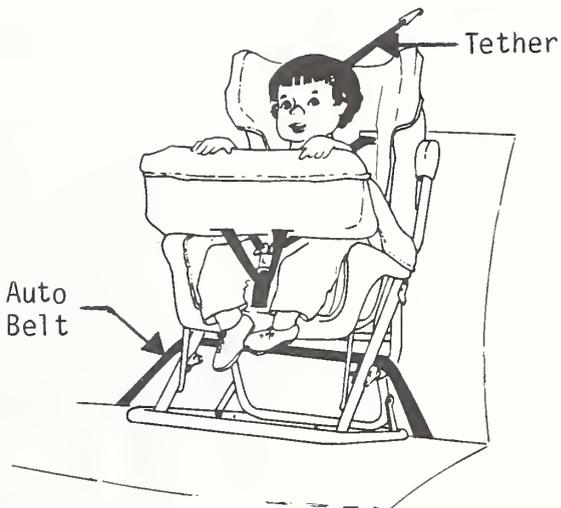
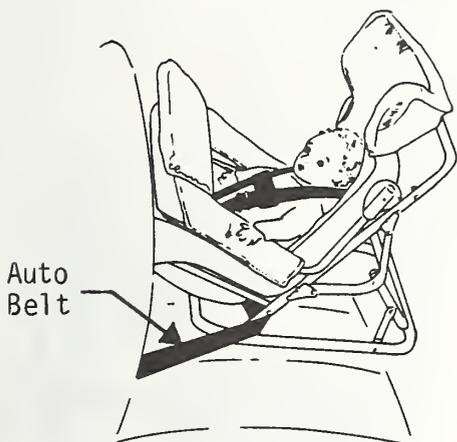
STROLEE WEE CARE (500 SERIES)

Manufacturer: Strolee of California
Convertible: Yes
Tether: Required



Infant Position

Toddler Position



Model 599

Infant Position

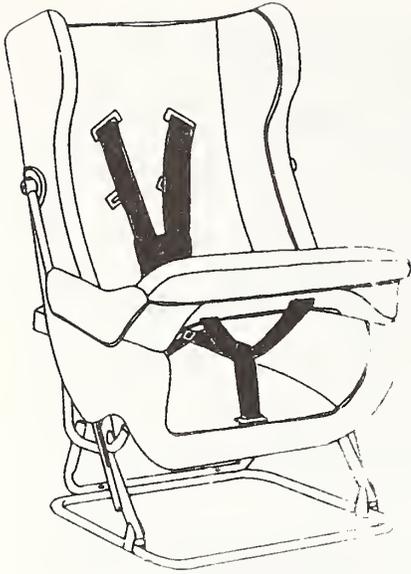
Toddler Position



Model 597

STROLEE WEE CARE (600 SERIES)

Manufacturer: Strolee of California
Convertible: Yes
Tether: Not Required (optional)



Model 612/618*

Toddler Position

Model 609/610*

Toddler Position



Auto
Belt



Auto
Belt

*Models 610 and 618 come with an optional Arm rest

Infant Position

Infant Position

Auto
Belt

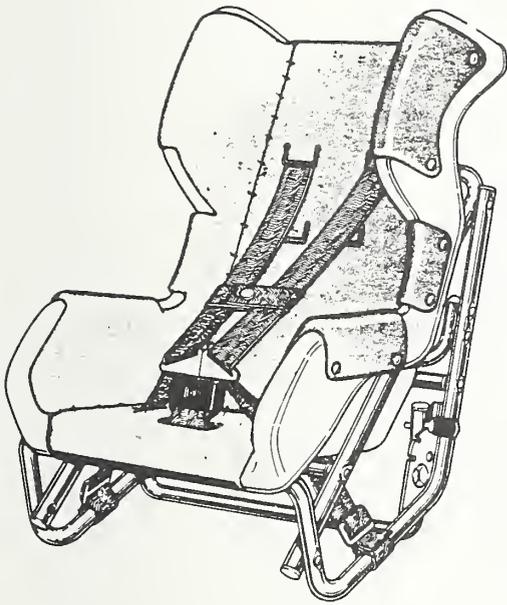


Auto
Belt

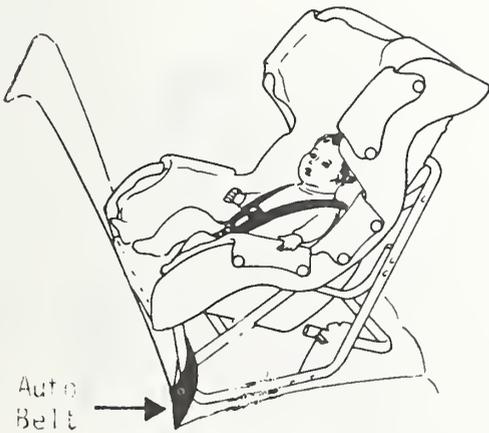


CENTURY 100

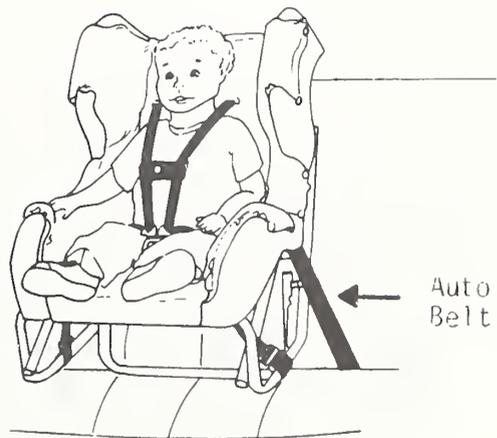
Manufacturer: Century Products
Convertible: Yes
Leather: Not Required



Infant Position

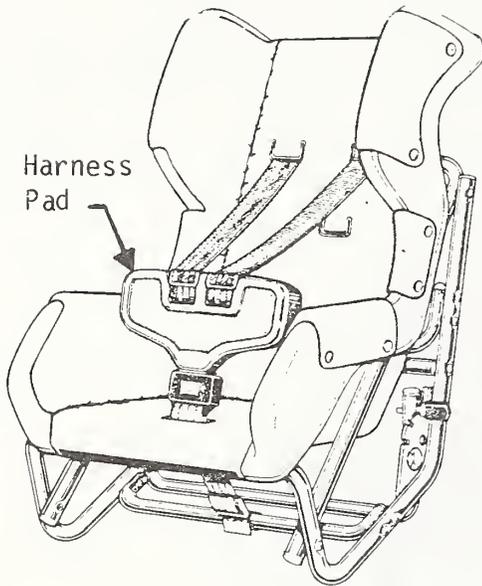


Toddler Position

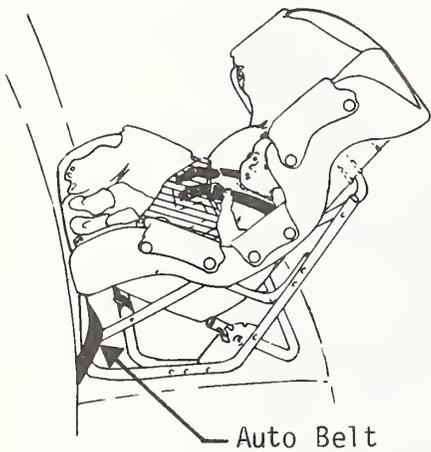


CENTURY 200

Manufacturer: Century Products
Convertible: Yes
Tether: Not Required



Infant Position

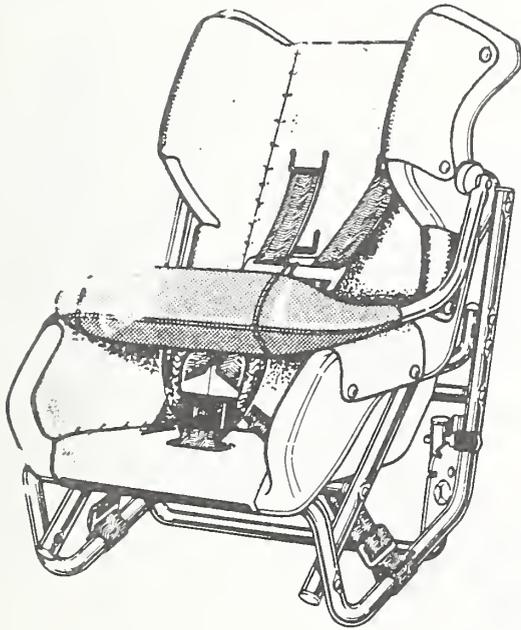


Toddler Position



CENTURY 300

Manufacturer: Century Products
Convertible: Yes
Upholstery: Not Required



Infant Position
(Rearward Facing)

Toddler Position
(Forward Facing)



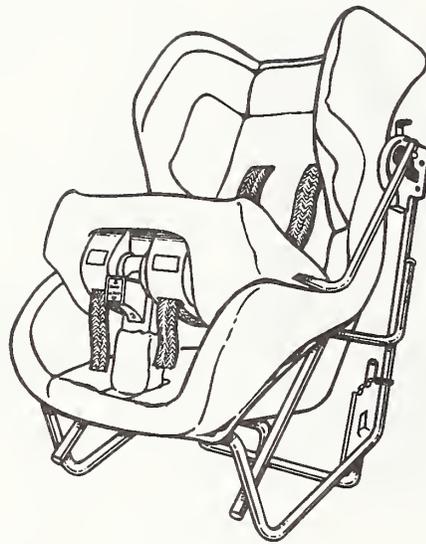
Auto Belt



Auto Belt

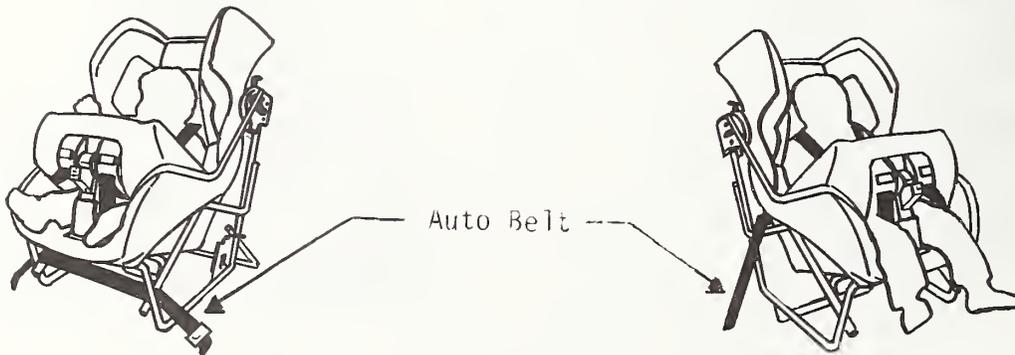
CENTURY 400 XL

Manufacturer: Century Products
Convertible: Yes
Tether: Not Required



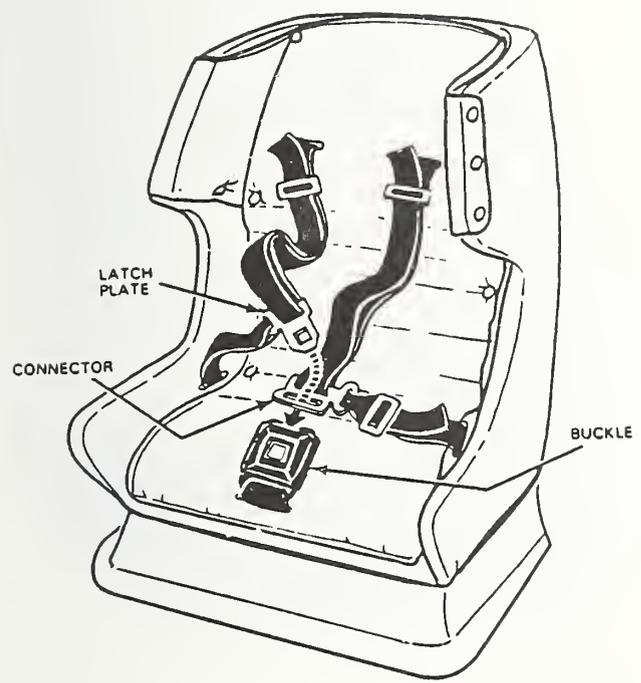
Infant Position

Toddler Position

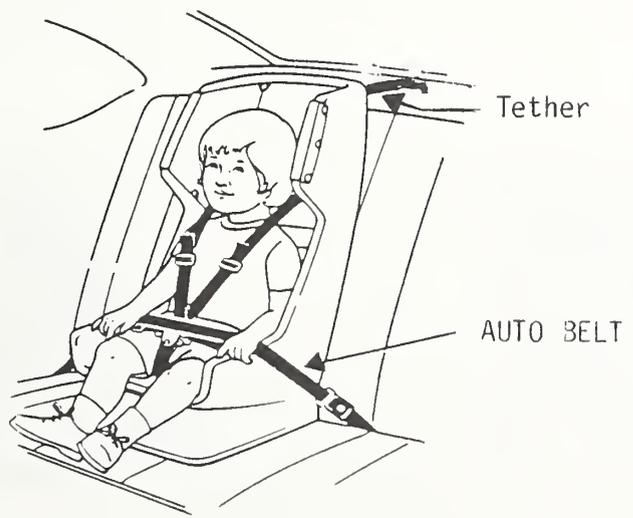


CHILD LOVE SEAT

Manufacturer: Century Home Products
Convertible: No
Tether: Required

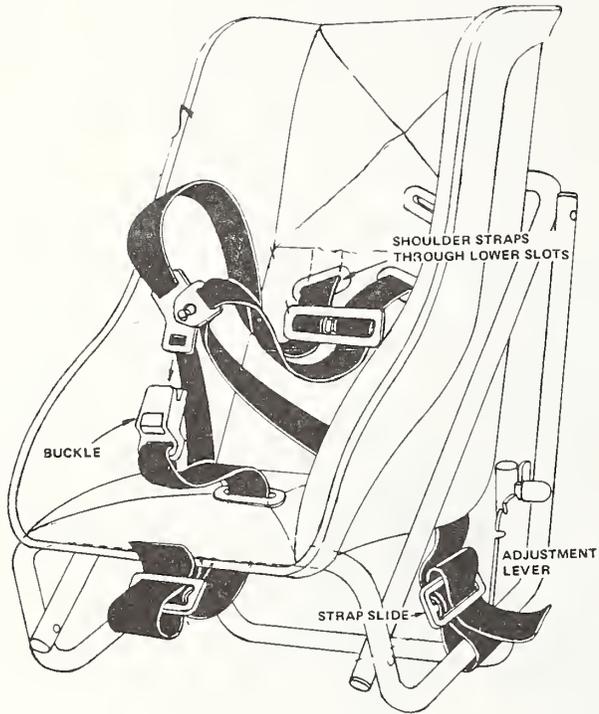


Toddler Position Only

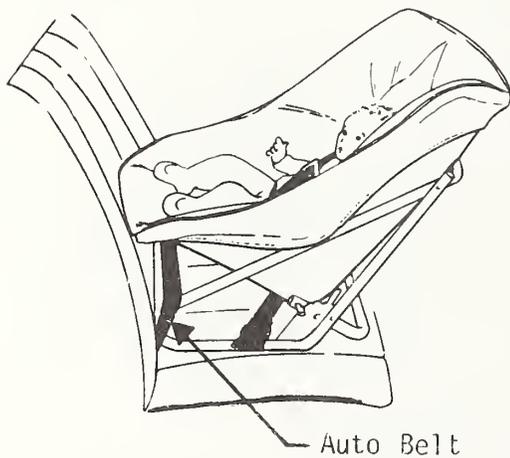


SAFE-T-SEAT (78-A)

Manufacturer: Cosco/Peterson
Convertible: Yes
Tether: Not Required



Infant Position



Toddler Position



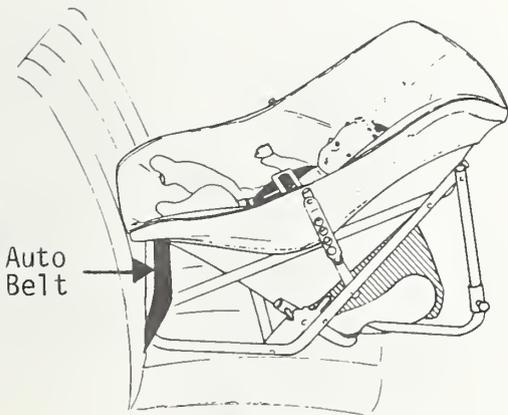
SAFE-T-SHIELD (81-A/81-B)

Manufacturer: Cosco/Peterson
Convertible: Yes
Leather: Not Required
Shield: Full Shield
Notes: Harness straps are not required in Toddler Position.

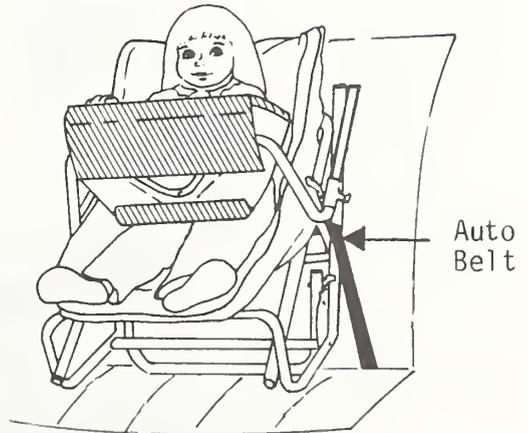


← Full shield

Infant Position

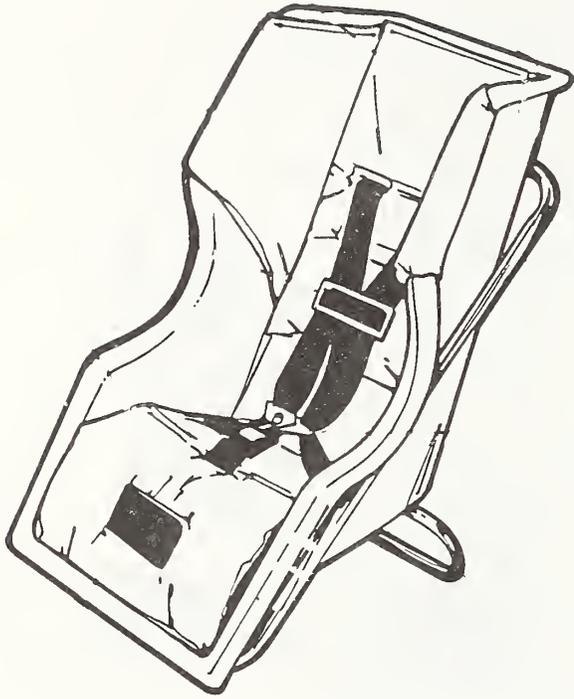


Toddler Position



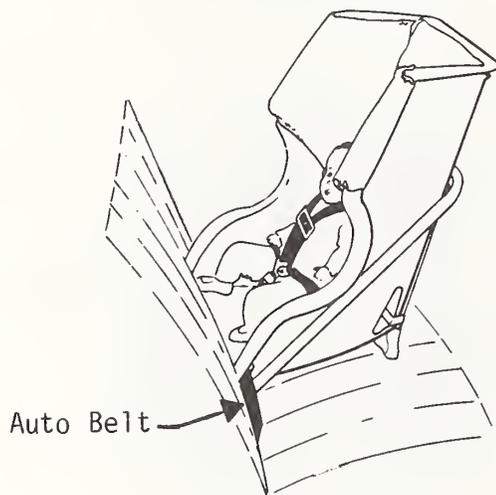
SAFE & EASY (313-A/313-B)

Manufacturer: Cosco/Peterson
Convertible: Yes
Tether: Not Required



Infant Position

Toddler Position



Auto Belt



Auto Belt

SAFE & SNUG (323-A/323-B)

Manufacturer: Cosco/Peterson

Convertible: Yes

Assembly: No Assembly Required



Infant Position

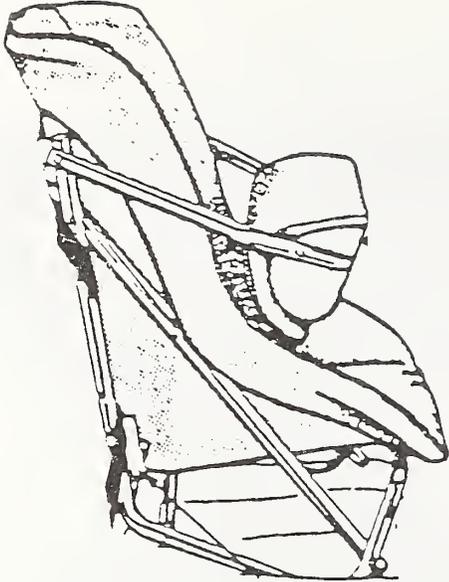


Toddler Position



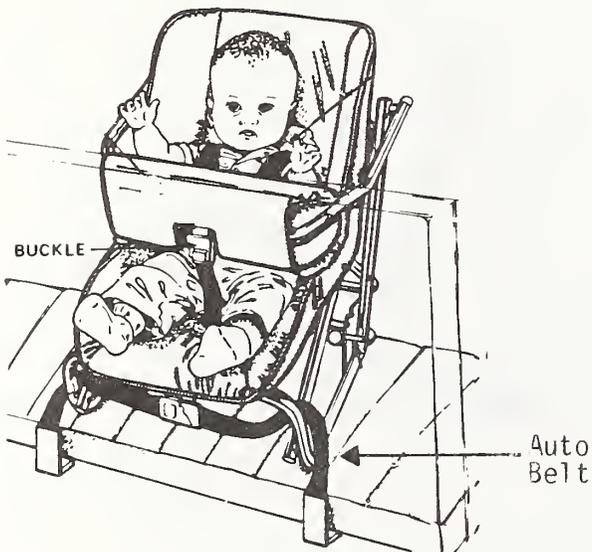
SAFE-T-MATE

Manufacturer: Cosco/Peterson
Convertible: Yes
Tether: Not Required



Infant Position

Toddler Position



COMMUTER

Manufacturer: Cosco/Peterson
Convertible: Yes
Tether: Not Required



Infant Position

Toddler Position



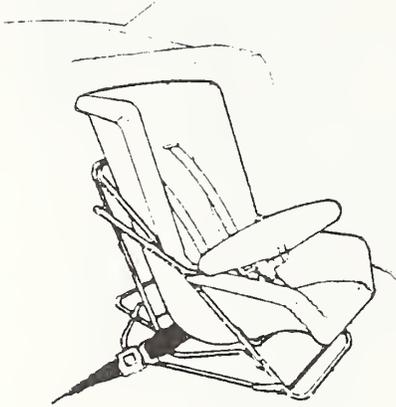
Auto Belt



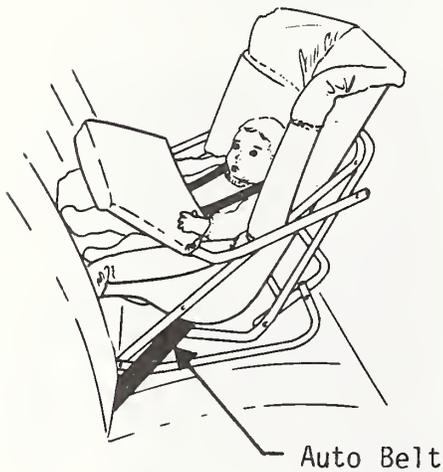
Auto Belt

KANTWET ONE STEP (401/402)

Manufacturer: Questor Juvenile Furniture Co.
Convertible: Yes
Tether: Not Required (optional)



Infant Position

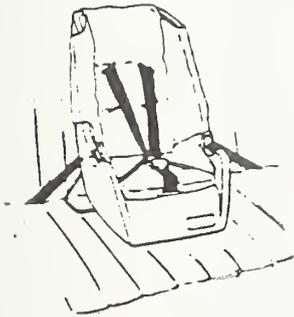


Toddler Position



KANTWET CARE SEAT (989)

Manufacturer: Questor Juvenile Furniture Co.
Convertible: Yes
Tether: Not Required



Infant Position

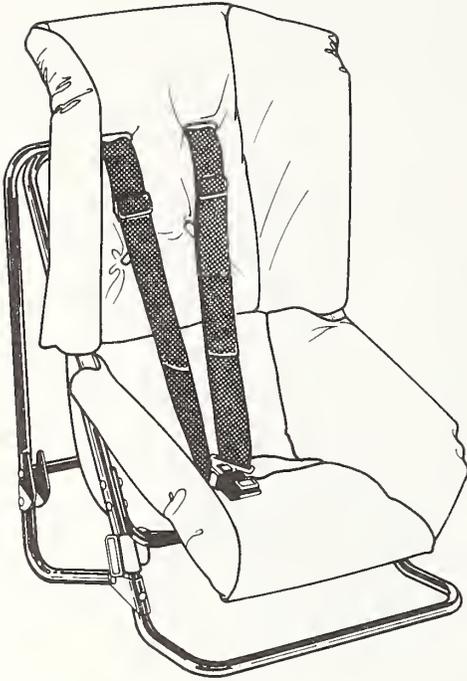


Toddler Position



KANTWET SAFE GUARD (301)

Manufacturer: Questor Juvenile Furniture Co.
Convertible: No
Tether: Not Required (optional)



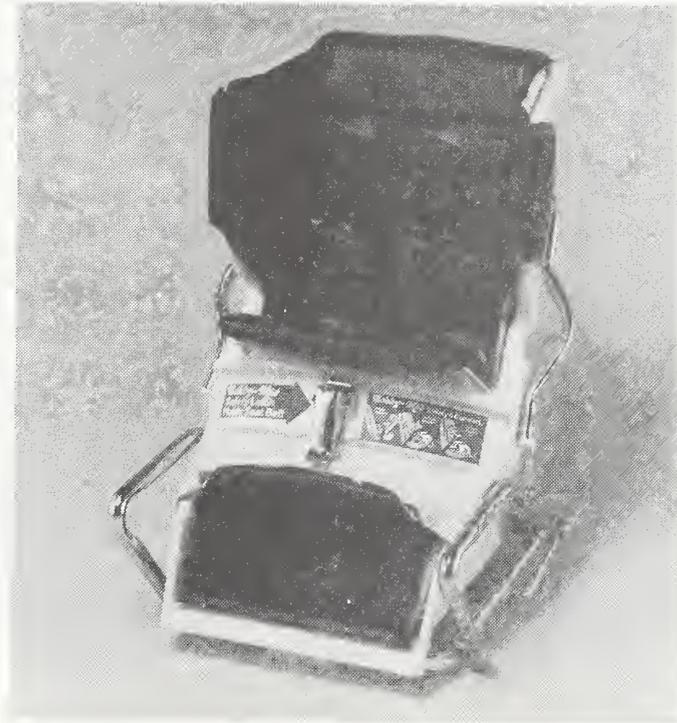
Toddler Position Only



BOBBY MAC DELUXE II (412/414)

Manufacturer: Questor Juvenile Furniture Co.
Convertible: Yes
Recliner: Not Required

Notes: Auto belt secures child and seat.
This seat is similar to the BOBBY MAC CHAMPION except it has a metal bar along the side of the seat.



Infant Position



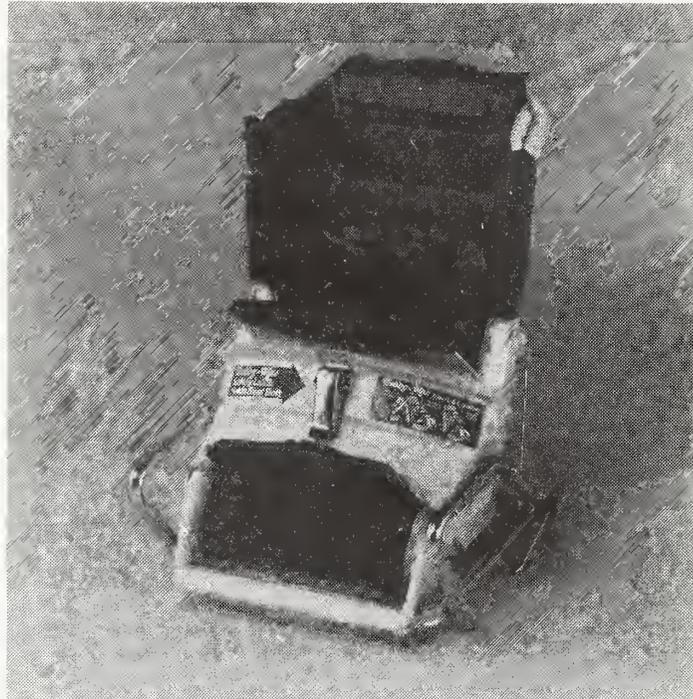
Toddler Position



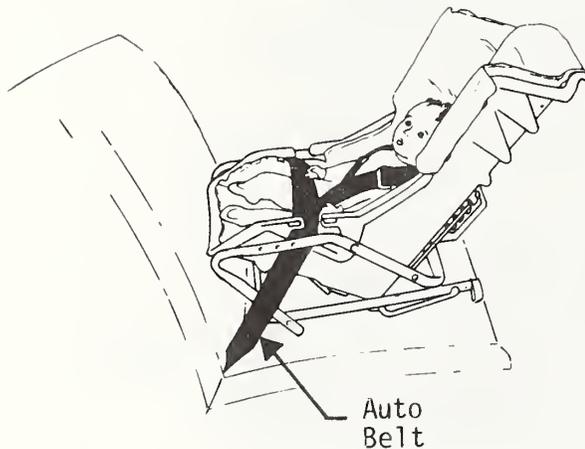
BOBBY MAC CHAMPION (411)

Manufacturer: Questor Juvenile Furniture Co.
Convertible: Yes
Other: Not Required

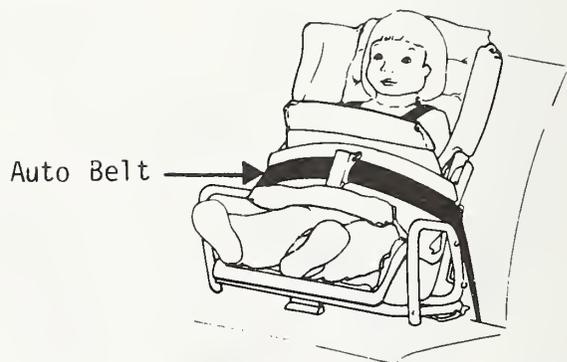
Notes: Auto belt secures the child and the seat. Similar to the BOBBY MAC DELUXE II except it does not have a metal bar along the side of the seat.



Infant Position



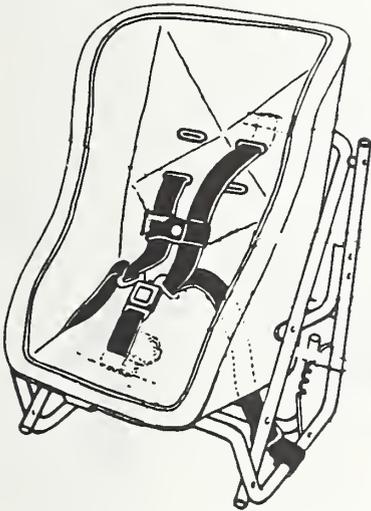
Toddler Position



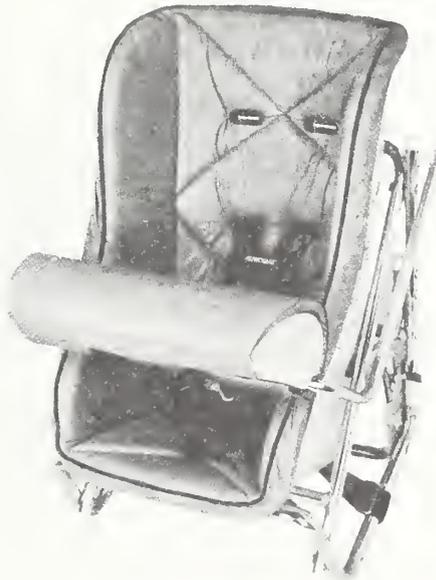
TEDDY TOT ASTROSEAT (9100/9300)

Manufacturer: International Manufacturing Co.
Convertible: Yes
Tether: Not Required

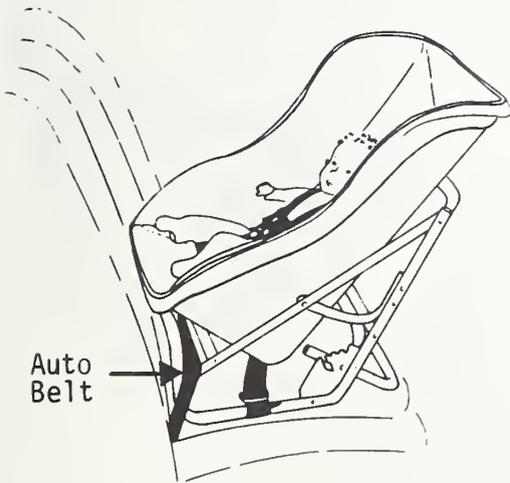
Notes: Models 9100 and 9300 are the same with the exception that Model 9300 is equipped with a partial shield. Looks very similar to the WONDA CHAIR.



Infant Position



Toddler Position



Auto Belt



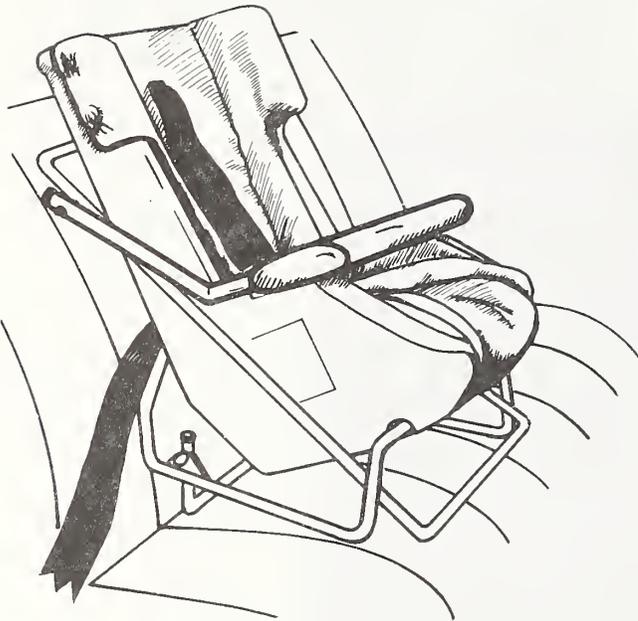
Auto Belt

KOLCRAFT HI-RIDER XL (17330)

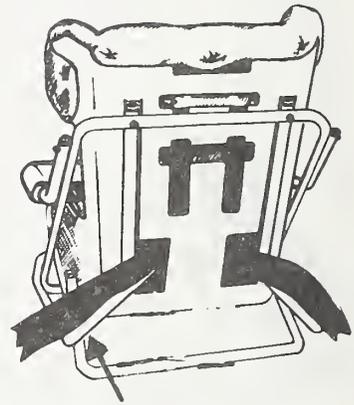
Manufacturer: Kolcraft Products, Inc.
Convertible: Yes
Other: Not Required

Notes:

A discontinued model of the HI-RIDER (19030C) was designed such that the auto belt secured the child and the seat. In the current HI-RIDER XL model the auto belt secures to the back frame.



Infant Position



AUTO BELT

Toddler Position



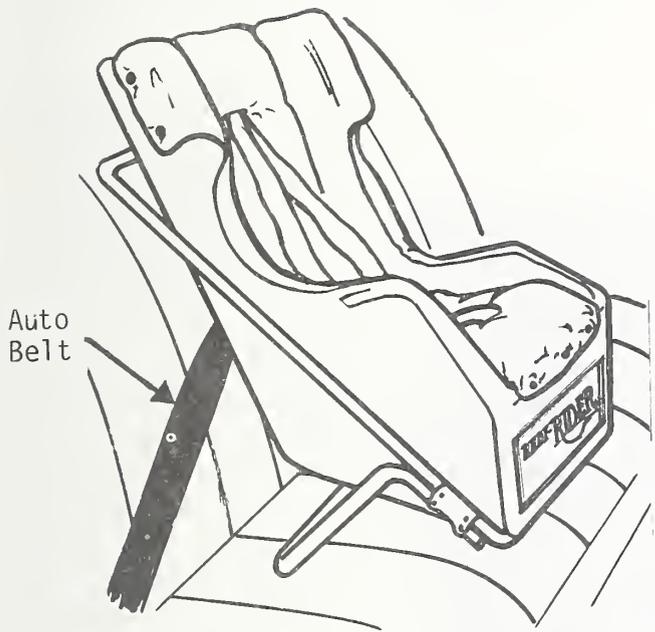
Auto Belt



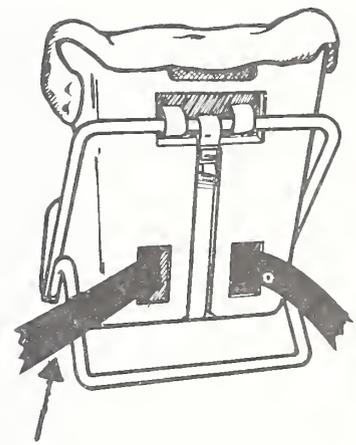
KOLCRAFT REDI-RIDER (17430/17530)

Manufacturer: Kolcraft Products, Inc.
Convertible: Yes
Tether: Not Required

Notes: Model 17530 is equipped with a harness pad (E-Z-GUARD SHIELD)



Infant Position

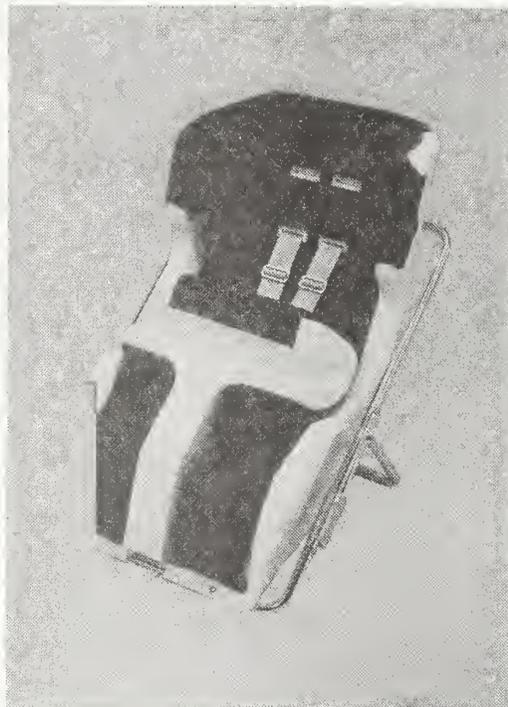


Toddler Position



QUICK STEP

Manufacturer: Kolcraft Products, Inc.
Convertible: Yes
Tether: Not Required
Shield: Full Shield for Toddler use
Notes: T-shaped shield is removable for use in the infant mode. Does not require the harness in the toddler mode. Comes in various types of padding.



Infant Use

Full shield for toddler use



Auto Belt →



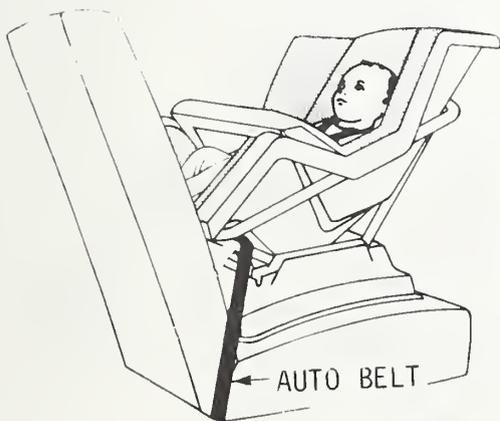
SAFE & SOUND/SAFE & SOUND II

Manufacturer: Collier-Keyworth
Convertible: Yes
Tether: Not Required

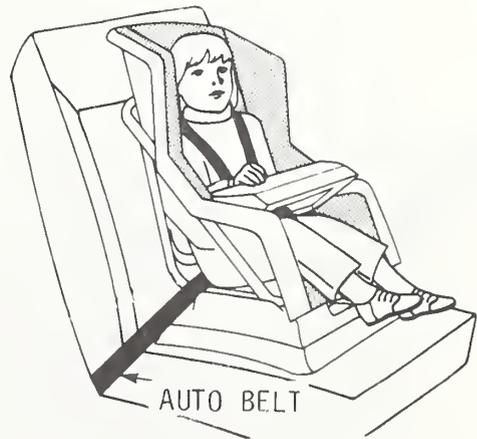
Notes: This model has a distinctive looking base. The SAFE & SOUND II has a slightly different shield design, and is larger than the original SAFE & SOUND model.



Infant Position



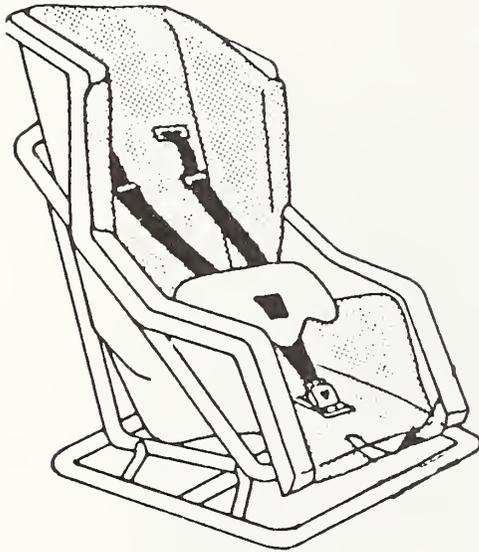
Toddler Position



ROUNDTRIPPER

Manufacturer: Collier-Keyworth
Convertible: Yes
Tether: Not Required

Notes: Has the same shell as the SAFE & SOUND II, but does not have the plastic covering over the base of the frame.



Infant Position

Toddler Position



Auto Belt

WELSH TRAVEL TOT (989)

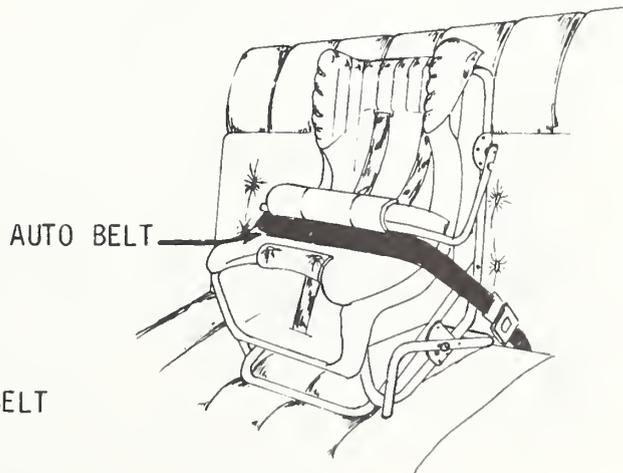
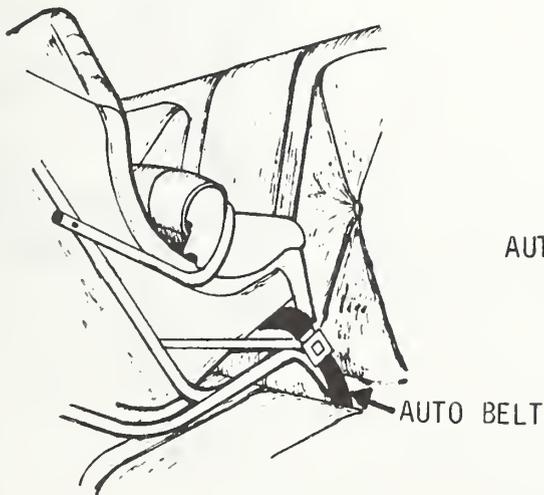
Manufacturer: Welsh Co.
Convertible: Yes
Tether: Not Required

Notes: In Model 989 the auto belt secures the child and the seat. In an older model (369), the auto belt secured to the undercarriage of the frame.



Infant Position

Toddler Position

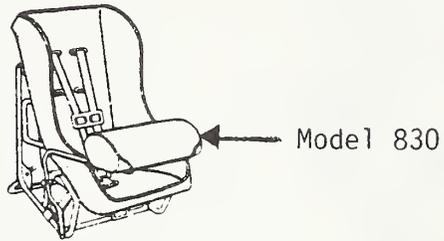


PRIDE RIDE (820/830)

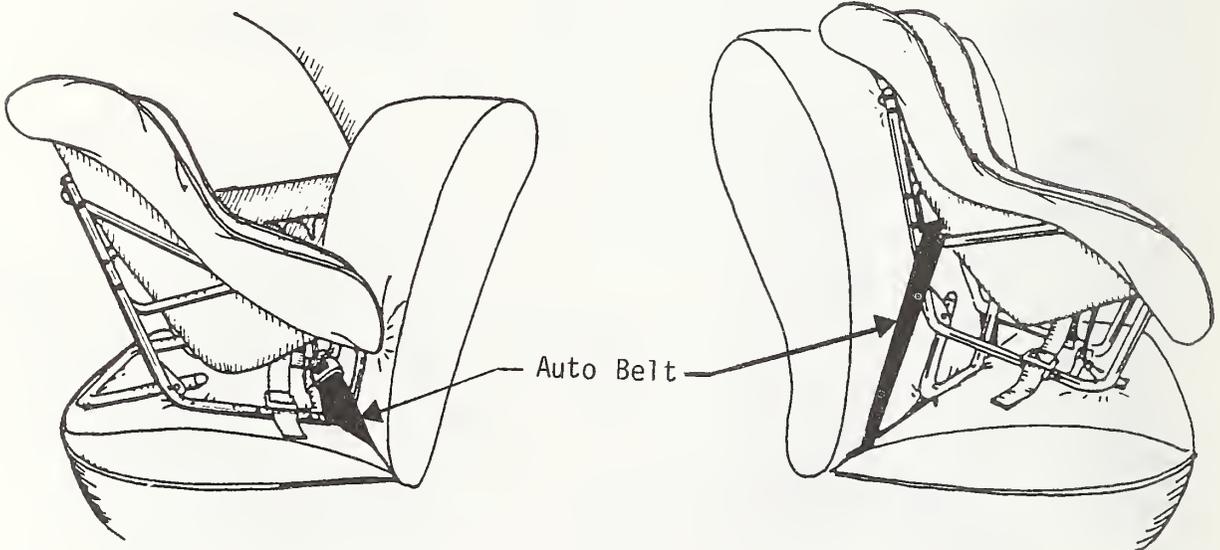
Manufacturer: Pride-Trimble Corp.
Convertible: Yes
Tether: Not Required (optional)



Infant Position

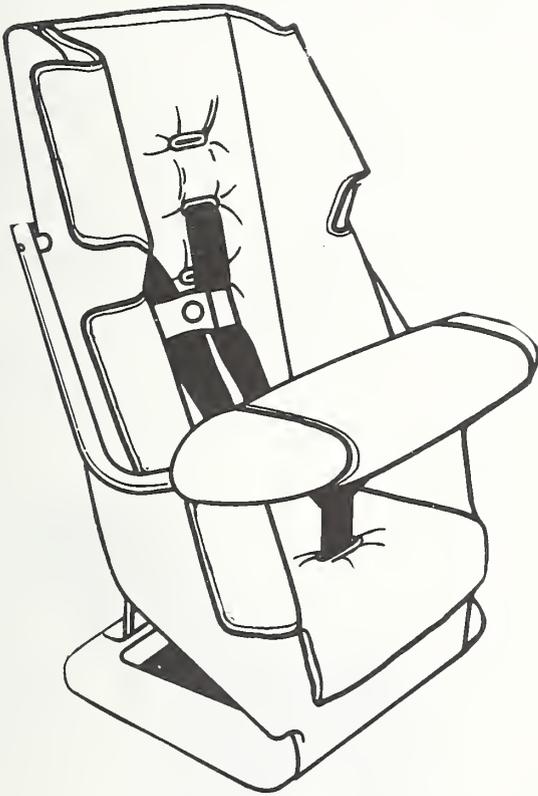


Toddler Position



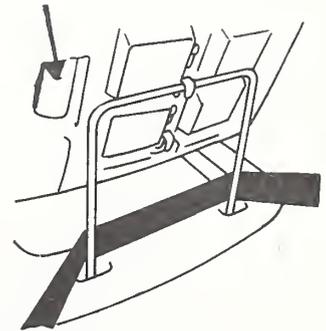
LITTLE TRAV'LER (315)

Manufacturer: Graco Children's Products, Inc.
Convertible: Yes
Tether: Not Required

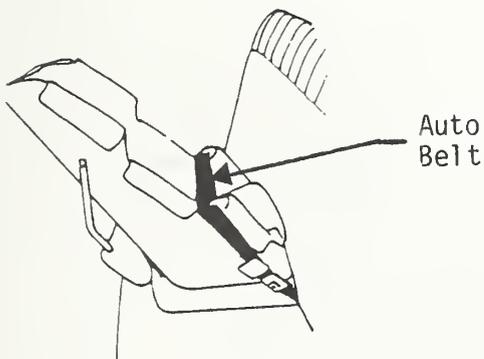


Place Auto Belt Here

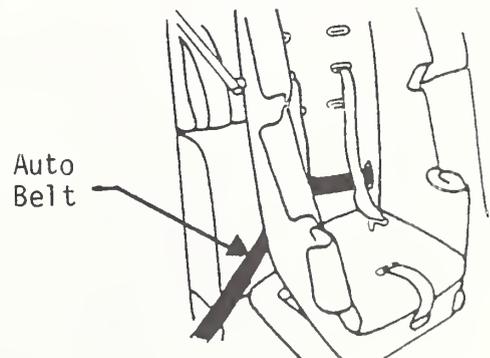
**DO NOT
ATTACH
VEHICLE LAP BELT
AROUND
ADJUSTMENT BAR.**



Infant Position



Toddler Position



FORD TOT GUARD

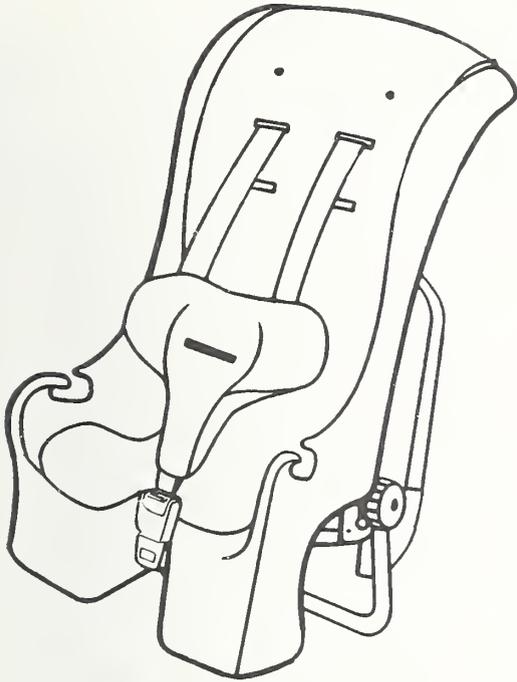
Manufacturer: Ford Motor Company
Convertible: No
Tether: Not Required
Shield: Full Shield
Notes: No harness required. The auto belt secures around the shield, but can remain secured without the child.



NISSAN CHILD SAFETY SEAT

Manufacturer: Nissan Motor Corporation
Convertible: Yes
Tether: Not Required

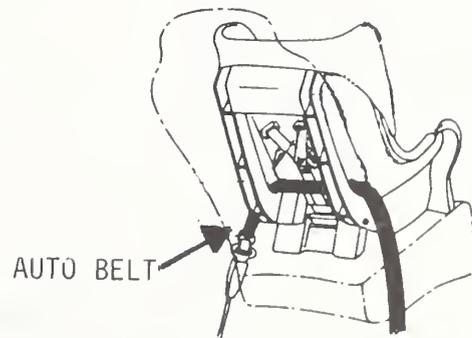
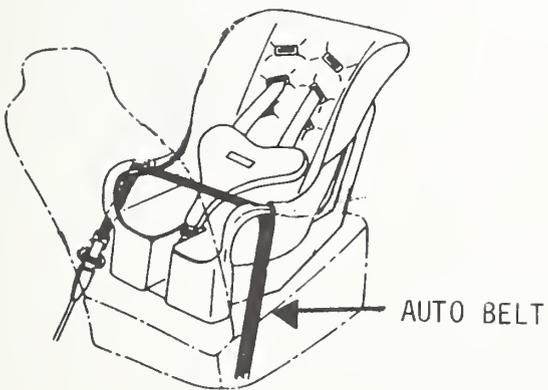
Notes: This seat is also manufactured by Takata Corporation under the name of GUARDIAN.



Infant Position

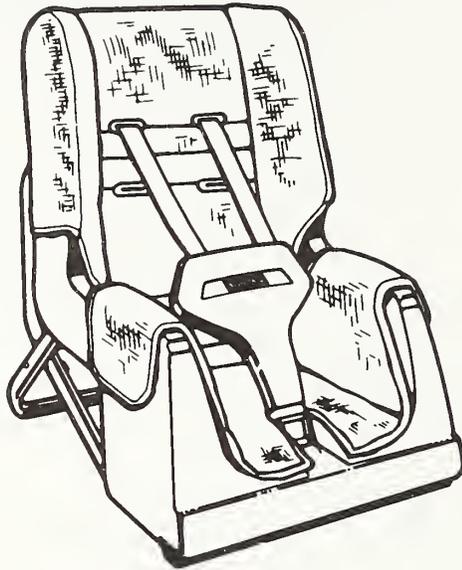


Toddler Position



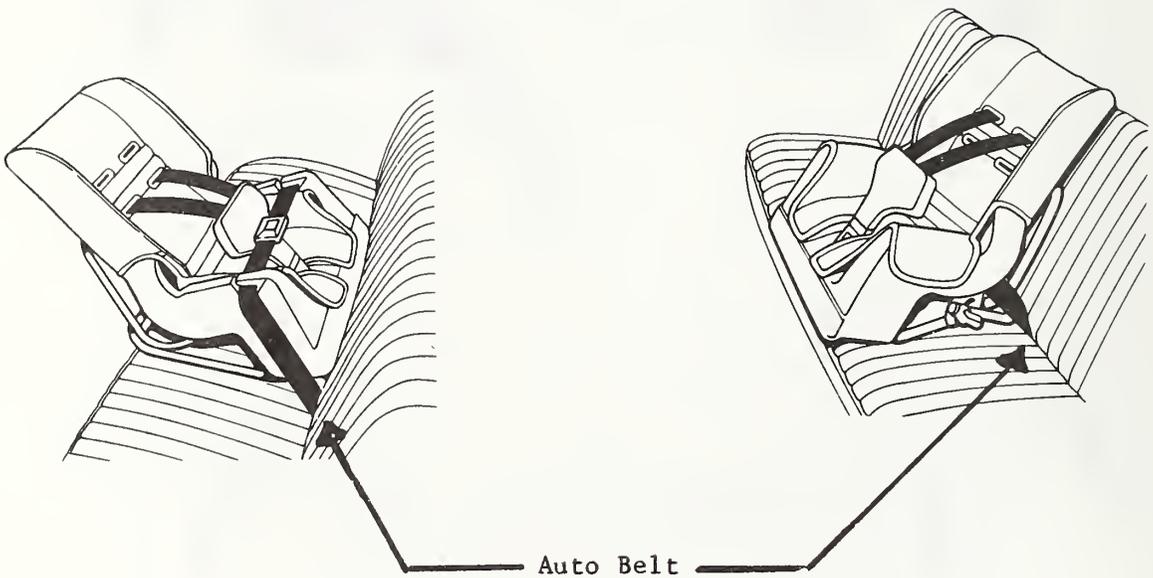
FISHER PRICE CAR SEAT

Manufacturer: Fisher Price
Convertible: Yes
Tether: Not Required



Infant Position

Toddler Position

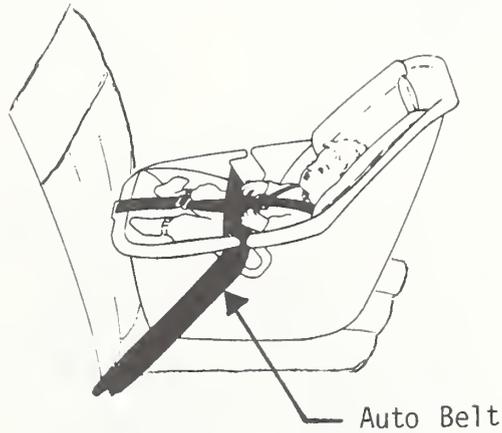
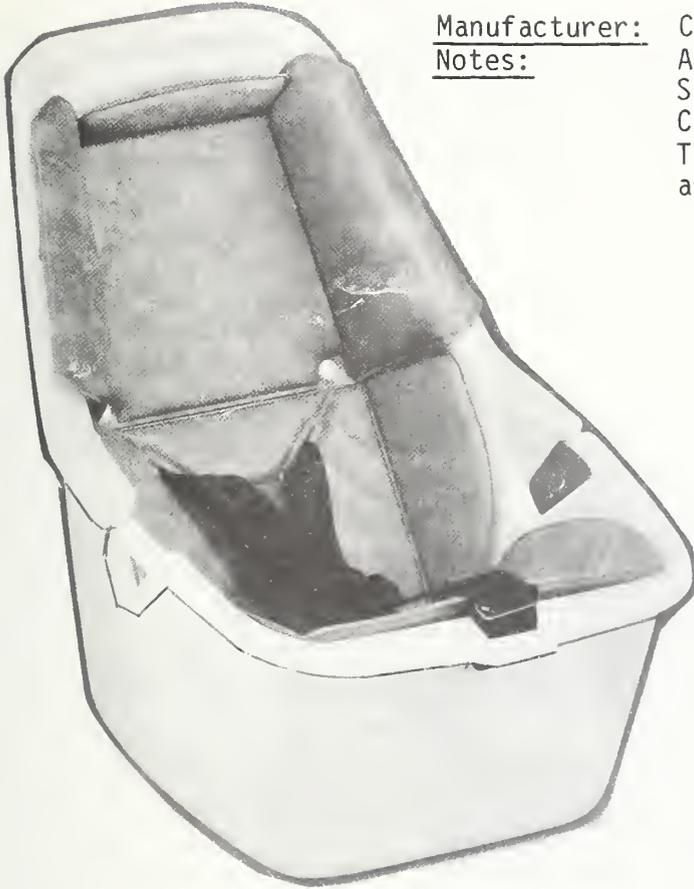


II. INFANT SAFETY SEATS

Infant safety seats are generally designed for infants less than 1 year old, and are designed to face the rear of the vehicle. This position allows the back of the infant to absorb the force of a crash. Infant safety seats are equipped with a five-point harness (straps) to secure the infant to the safety seat and have provisions for using the auto safety belt system to secure the seat to the car. The 5-point system includes a pair of straps that go over the infants shoulders, lap belts and a crotch strap. Note the infant safety seats are designed to face rearward. There are also convertible safety seats which can be used for toddlers or can be used in the infant position (rearward facing). For these consult the list of toddler/convertible seats.

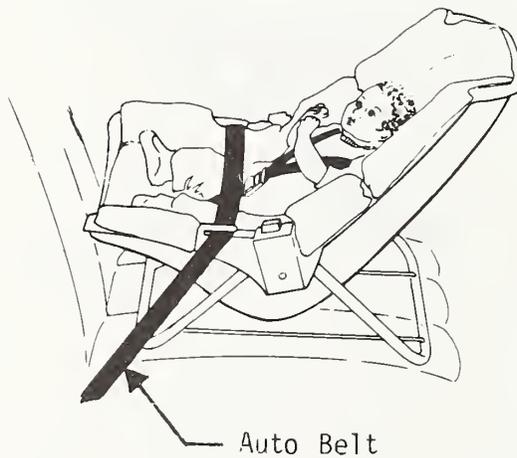
INFANT LOVE SEAT

Manufacturer: Century Products, Inc.
Notes: Also known as the GM INFANT LOVE SEAT, FORD INFANT CARRIER, and CHRYSLER INFANT SAFETY CARRIER. The auto belt secures the child and the seat.



DYN-O-MITE

Manufacturer: Questor Juvenile Furniture Co.
Notes: Comes in many different colors and patterns of padding. The auto belt secures the child and the seat.

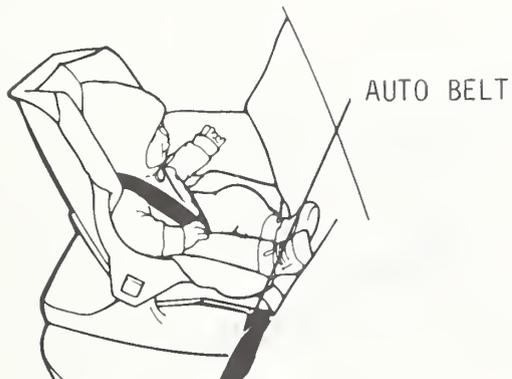
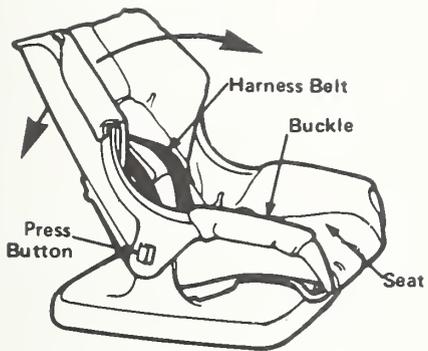


FIRST RIDE

Manufacturer: Cosco/Peterson

Notes:

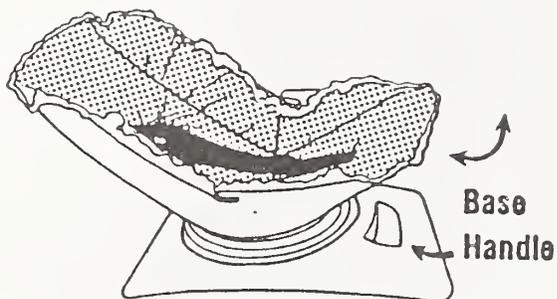
The belt secures the frame of the seat. Distinctive base to the seat.



CUDDLE SHUTTLE

Manufacturer: Collier-Keyworth

Notes: The belt secures the child and the seat. Has a distinctive swivel base with a handle in it. Comes in many different colors and patterns of padding.



III. BOOSTER SAFETY SEATS

Boosters are strong, firm seats which usually have no back. Booster seats are designed for use in a vehicle and have a device to secure a vehicle lap belt. They must be used with a lap belt and some type of upper-body restraint. This can be either a 3-point vehicle lap/shoulder safety belt or the vehicle lap belt used with the two-strap harness (sold with the booster seat), which is fastened with a tether strap, or a full shield. Newer designs of booster seats, such as the CO-PILOT, COMMANDER, EXPLORER I, VOYAGER and the BOBBY-MAC WINGS seats are designed with a full shield to provide upper-body restraint. In each case, the lap belt secures seat to the vehicle, and no upper-body harness or tether strap is required.

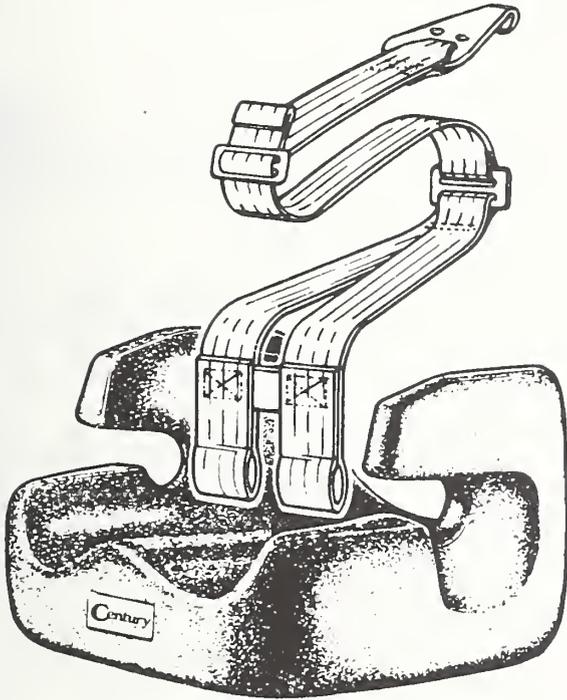
Although most of the older booster safety seats look similar, there are some distinguishing characteristics which can be used to identify the manufacturer. For example, the STROLEE BOOSTER SEAT has bicycle grip handles to secure the vehicle safety belt. The shape or name plate on other seats can also be used to identify different brands of booster safety seats.



SAFE-T-RIDER/SAFE-T-RIDER II

Manufacturer: Century Products, Inc.
Upper-Body Restraint: Shoulder belt or tether/harness system.

Notes: Molded plastic. SAFE-T-RIDER II has a vinyl padded seat.



Used with Snoulder/Lap Belt



Used with Lap Belt and Harness



COMMANDER

Manufacturer:
Upper-Body Restraint:
Notes:

Century Products
Full Shield
Shield pivots on the left side
of the seat to allow access.
Harnessing not required.

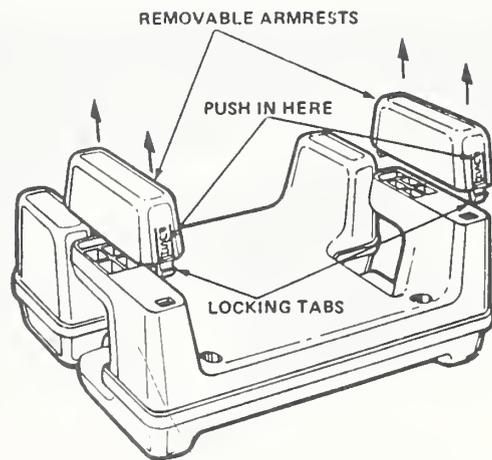
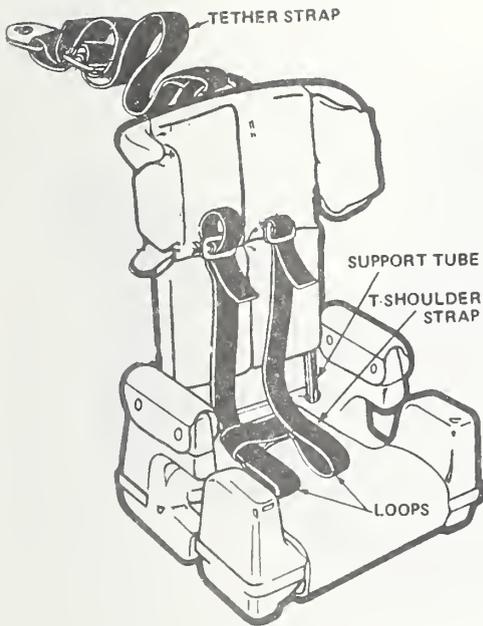


Auto Belt

TRAVEL HI-LO

Manufacturer: Cosco/Peterson
Upper-Body Restraint: Shoulder belt or tether/harness system.

Notes: The basic TRAVEL HI-LO model is molded plastic. The DELUXE model has a vinyl padded seat and arm rest. The HIGH BACK TRAVEL HI-LO is the DELUXE model with a vinyl padded back attached (similar to a toddler seat).



HI-BACK



DELUXE MODEL

Auto Belt

EXPLORER I

Manufacturer:

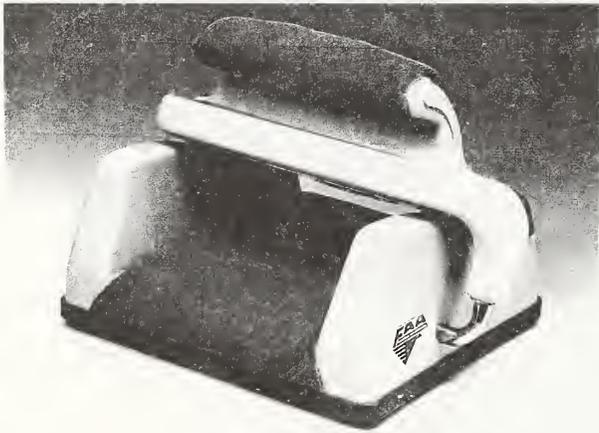
Cosco/Peterson

Upper-Body Restraint:

Full Shield

Notes:

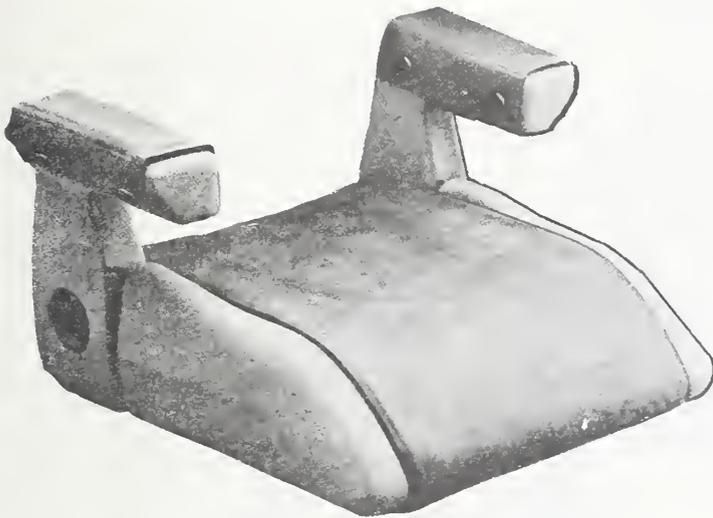
Swing-away shield pivots on the left side of the seat. Belt is routed around the shield. Harnessing not required.



Auto Belt

TEDDY TOT ASTRORIDER

Manufacturer: International Manufacturing Co.
Upper-Body Restraint: Shoulder belt or tether/harness system
Notes: Molded plastic with vinyl padded seat and arm rests.



Used with Shoulder/Lap Belt



Used with Lap Belt and Harness



TOT RIDER/TOT RIDER XL

Manufacturer:

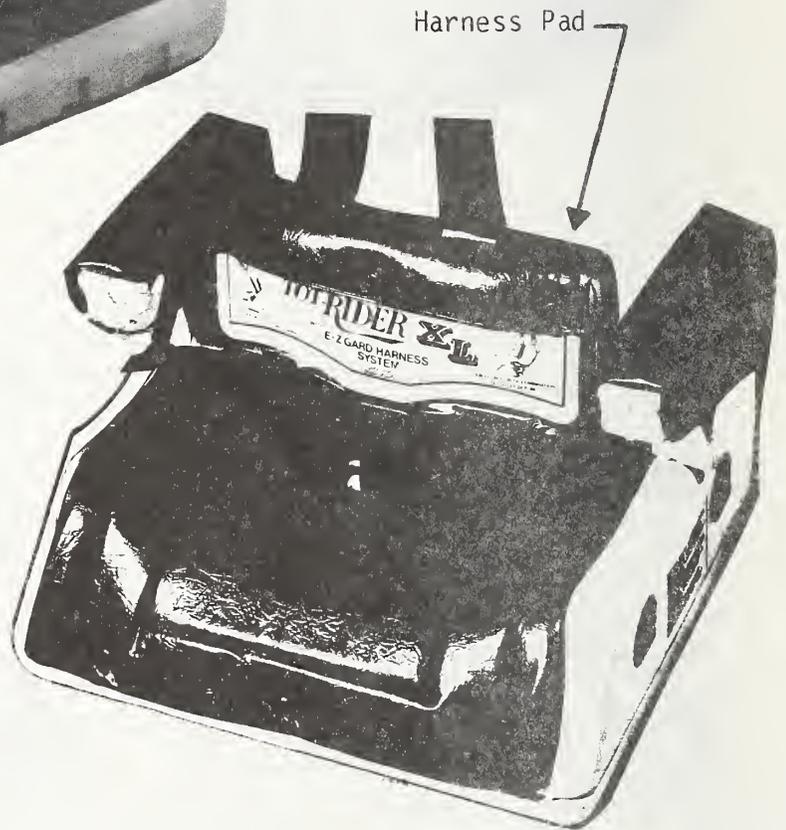
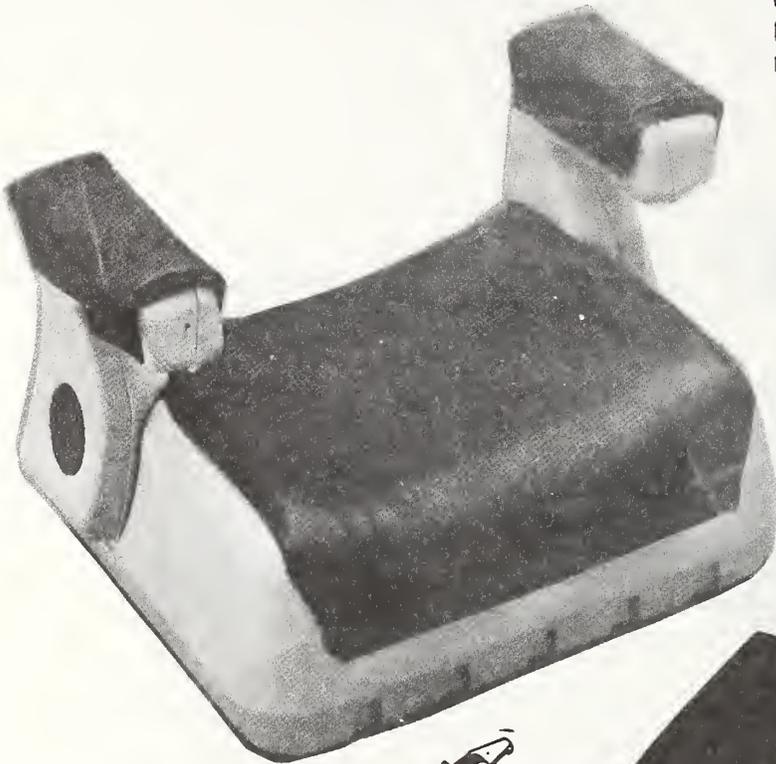
Kolcraft Products, Inc.

Upper-Body Restraint:

Shoulder belt, tether/harness system or partial shield/harness/tether system.

Note:

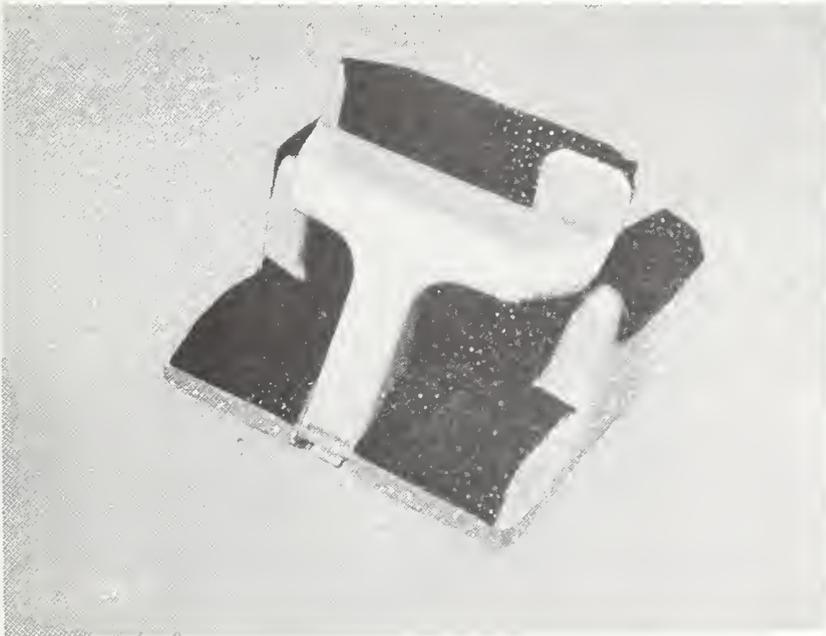
Molded plastic with vinyl padded seat and arm rest. The TOT RIDER XL is equipped with harness pad (E-Z-GUARD SHIELD).



TOT RIDER X-L

TOT-RIDER QUICK STEP

Manufacturer: Kolcraft Products, Inc.
Upper-Body Restraint: Full Shield
Notes: Distinctive T-shaped shield similar to the QUICK STEP toddler seat.



CO-PILOT/CO-PILOT II

Manufacturer:

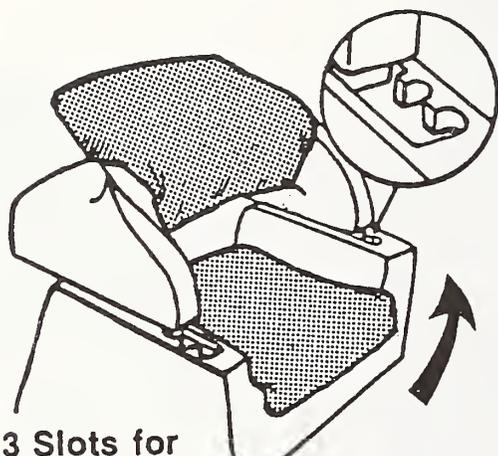
Collier-Keyworth

Upper-Body Restraint:

Full Shield

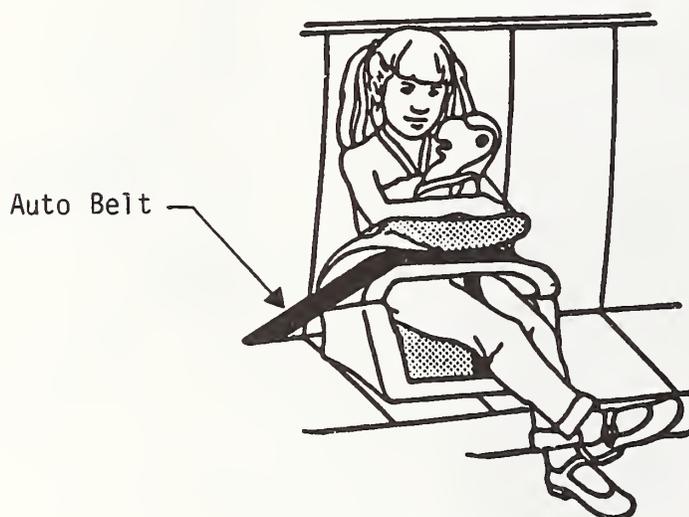
Notes:

Belt is routed around the shield.
No harness needed. The CO-PILOT II
is somewhat larger than the original
CO-PILOT model.



**3 Slots for
Shield Adjustment**

Toddler Position Only



VOYAGER

Manufacturer:

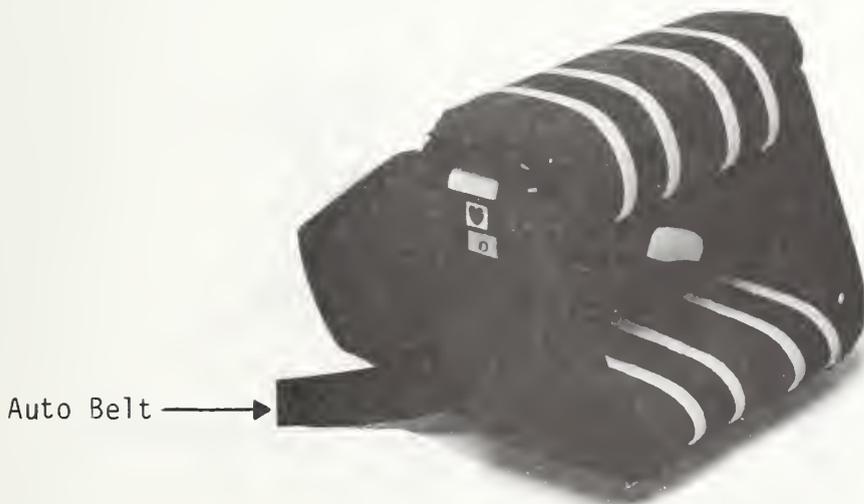
Collier-Keyworth

Upper-Body Restraint:

Full Shield

Notes:

The vehicle belt is routed through the base of the safety seat. Full padded shield locks into place. Harnessing not required. The padding comes in a variety of colors and patterns.



WEE CARE BOOSTER SEAT

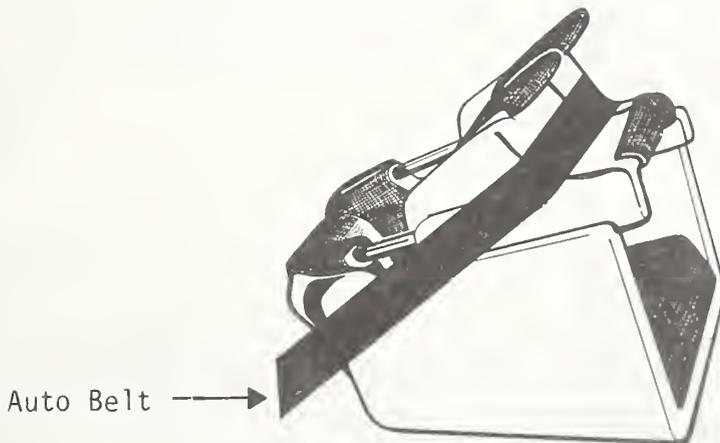
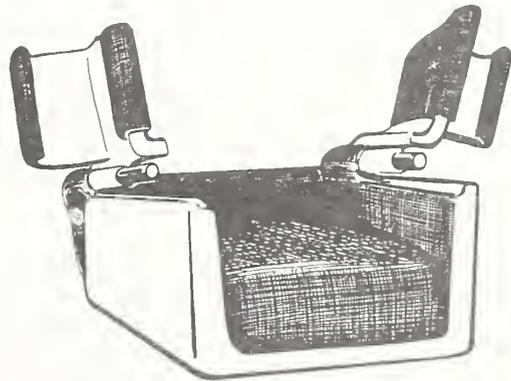
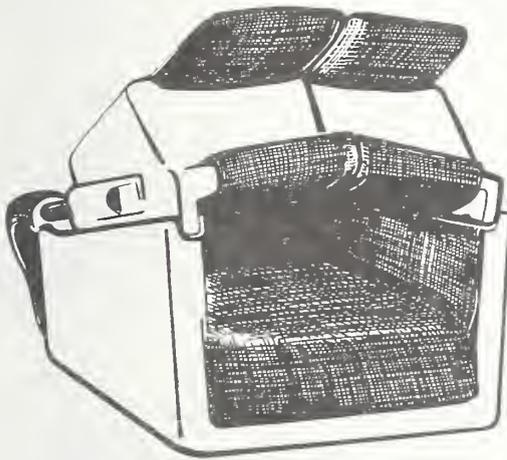
Manufacturer: Stroelee of California
Upper-Body Restraint: Shoulder belt or tether/harness system.
Note: Molded plastic with vinyl padded seat (Model 602) or a cloth padded seat (Model 603). Distinctive bicycle grip handles.



BOBBY MACK WINGS

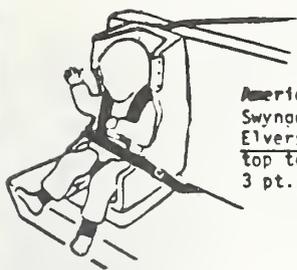
Manufacturer:
Upper-Body Restraint:
Notes:

Questor Juvenile Furniture Co.
Full Shield
Divided shield opens to both sides. Belt is routed around the shield. Harnessing not required. Comes in various colors of padding.



IV. PRE-1981 SAFETY SEATS

The illustration of pre-1981 safety seats were taken from the manual "Protecting Our Own" a Community Child Passenger Program Manual, published by the National Highway Traffic Safety Administration. Manufacturers listed are those currently supplying parts for these older models, not necessarily the original manufacturers.



American Safety Seat
Swyngomatic/Graco, Main St.
Elverson, PA 19520
top tether
3 pt. harness with abdominal pad



Child Love Seat or Motor Toter
Century, 1366 Commerce Dr., Stow, OH 44224
top tether
5 pt. harness



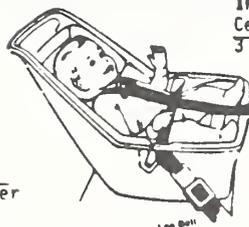
Astroseat V
International Mfg.
2500 Washington St., Boston, MA 02119
top tether
5 pt. harness



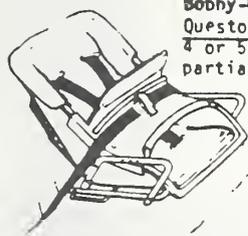
Infaseat Harness
Questor, 1801 Commerce Dr., Piqua, OH 45356
top tether
5 pt. harness and shoulder harness plate



Astroseat 9100 Series
International Mfg.
2500 Washington St., Boston, MA 02119
5 pt. harness with shoulder strap retainer
harness recalled - contact manufacturer



Infant Love Seat
Century, 1366 Commerce Dr., Stow, OH 44224
3 pt. harness and strap retainer



Bobby-Mac 2-in-1 or 3-in-1
Questor, 1801 Commerce Dr., Piqua, OH 45356
4 or 5 pt. harnesses and strap retainer
partial shield



Kantwet Fitz-All Deluxe #597
Questor, 1801 Commerce Dr., Piqua, OH 45356
top tether
5 pt. harness



Bobby Mac Deluxe
Questor, 1801 Commerce Dr., Piqua, OH 45356
3 or 5 pt. harness and strap retainer
partial shield



Kantwet 784, 785
Questor, 1801 Commerce Dr., Piqua, OH 45356
top tether
5 pt. harness



Bobby Mac Super
Questor, 1801 Commerce Dr., Piqua, OH 45356
Y-shaped top tether
5 pt. harness with strap retainer



Kantwet 884, 885
Questor, 1801 Commerce Dr., Piqua, OH 45356
top tether
5 pt. harness



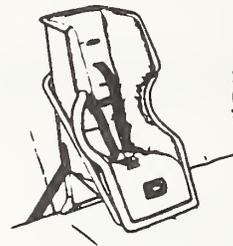
Kantwet 985, 986, 987, 988
Questor, 1801 Commerce Dr., Piqua, OH 45356
5 pt. harness



Safe N Easy 203
Cosco/Peterson
2525 State St., Columbus, IN 47201
top tether
5 pt. harness with strap retainer



Kantwet One Step 401
Questor, 1801 Commerce Dr., Piqua, OH 45356
2 shoulder straps and one crotch strap attached to padded arm rest
top tether



Safe N Easy 13-313,314
Cosco/Peterson (address above)
5 pt. harness with retainer clip



Little Rider Harness
Rose Manufacturing Co.
2250 So. Tejon St., Englewood, CO 80110-1091
5 pt. harness with D-shaped slide adjustment



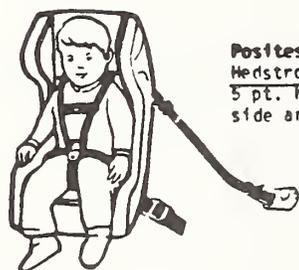
Safety Shell 75, or 74 plus 72 insert
Cosco/Peterson (address above)
3 pt. harness
side tether
screw-in plastic insert (#72)



Mopar Child Seat
Chrysler Corp.
Parts Order Dept., Nat'l Depot.
26311 Lawrence, Centerline, MI 48015
one piece padded shield



Safety Shell 74 (for Toddler)
Cosco/Peterson (address above)
shield with crotch strap
side tether



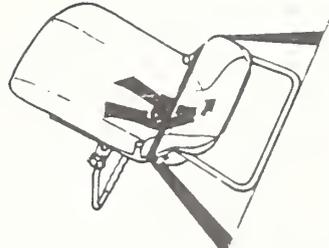
Posttest
Hedstrom, P.O. Box 432, Bedford, PA 15522
5 pt. harness with strap retainer
side anchor strap



Safety Shell 74 (for 3-4 year old)
Cosco/Peterson (address above)
5 pt. harness
side tether
(order extra retainer clip)



Safe-T-Seat 78
 Cosco/Peterson
 2525 State St., Columbus, IN 47201
 top tether before 1980
 5 pt. harness with retainer



Travel-L-Ette
 Century, 1366 Commerce Dr., Stow, OH 44224
 3 pt. harness with strap retainer



Safe-T-Rider
 Century, 1366 Commerce Dr., Stow, OH 44224
 tethered harness (defective before 1980)



Trav-L-Guard
 Century, 1366 Commerce Dr., Stow, OH 44224
 5 pt. harness with strap retainer
 armrest strap
 armrest (can be removed)



Sweetheart II, 48, 70, 71
 Unilando-Bunny Bear (out of business)
 5 pt. harness



Wee Care 597, 597S
 Strolee, P.O. box 5786
 Rancho Dominguez, CA 90224
 top tether
 5 pt. harness with strap retainer
 armrest strap
 armrest (can be removed)



Toddler Car Seat 595
 Strolee, P.O. Box 5786
 Rancho Dominguez, CA 90224
 5 pt. harness with strap retainer



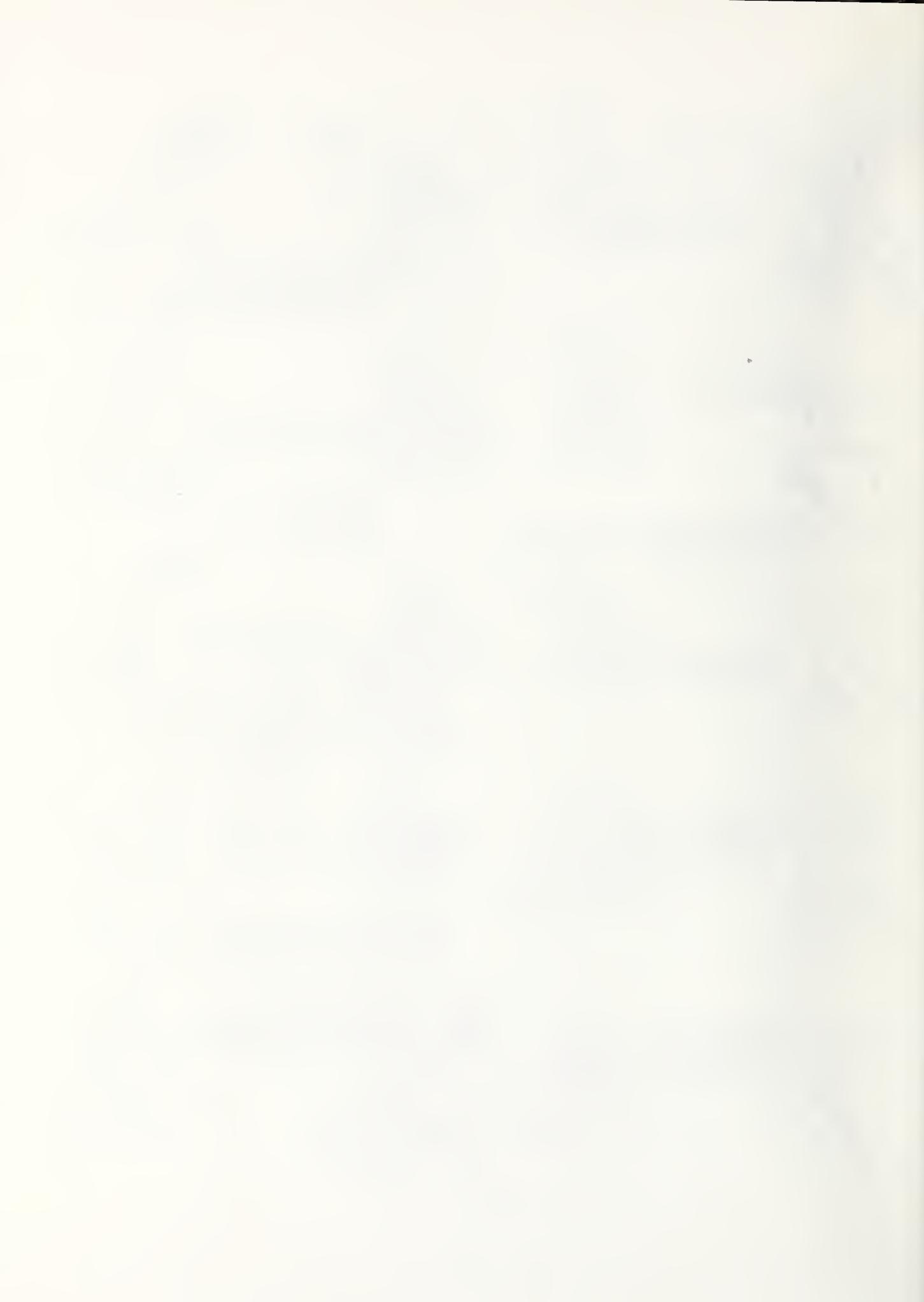
Special Note on Wee Care 597, 597S
 (Picture shows the only safe infant position) Modify seats made before April '80 by using two #12 auto hose clamps to secure support bar to base at back.



Tot Guard
 Ford, Accessories Merchandising,
 P.O. Box 1902, Dearborn, MI 48121
 padded shield
 booster cushion



Child Safety Cushion
 Volvo, Parts Div., Industrial Park,
 Rockleigh NJ 07647
 upholstered one piece booster base for use with lap/shoulder belts only.





TL 242 • Z53

Ziegler, Pet

Guidelines 1
child safet

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FORMERLY FORM DOT F

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